United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with the West Virginia Agricultural and Forestry Experiment Station and West Virginia Conservation Agency

Soil Survey of Lincoln County, West Virginia

How To Use This Soil Survey

General Soil Map

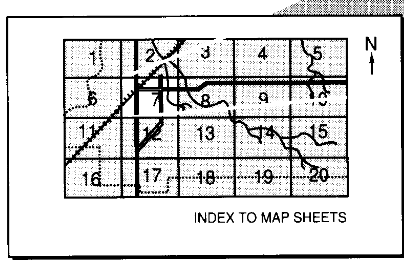
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

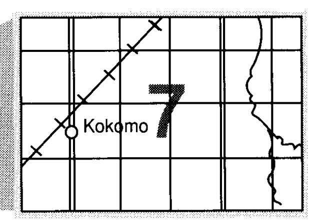
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.



INDEX TO MAP SHEETS



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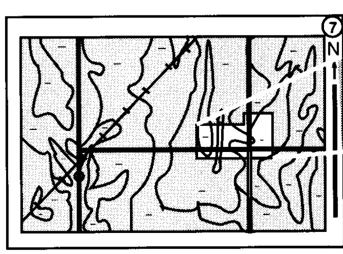

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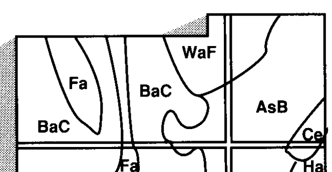

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2003. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2003. This survey was made cooperatively by the Natural Resources Conservation Service, the West Virginia Agricultural and Forestry Experiment Station, and the West Virginia Conservation Agency. The survey is part of the technical assistance furnished to the Guyan Conservation District.

Cover: A variety of landforms and land uses in the Mud River valley near Hamlin, looking southward.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued September 2007

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Kevin J. Wickey
State Conservationist
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Soil Survey of Lincoln County, West Virginia

By Richard D. Jones, Natural Resources Conservation Service

Fieldwork by Richard D. Jones, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
the West Virginia Agricultural and Forestry Experiment Station
and the West Virginia Conservation Agency

LINCOLN COUNTY is located in the southwestern part of West Virginia (fig. 1). The counties bordering Lincoln County are Cabell and Putnam to the north, Kanawha to the northeast, Boone to the east, Logan and Mingo to the south, and Wayne to the west. Lincoln County has a total area of 281,000 acres, or about 439 square miles. In 2000, the county had a population of 22,108 (U.S. Department of Commerce 2002).

The main enterprises in the county are timber production, natural gas and petroleum production, farming, and coal production. Mining and related industries, railroads, drilling, logging, and educational fields account for most of the employment in the county.

General Nature of the County

This section describes the history and settlement, farming, transportation facilities, relief and drainage, natural resources, geology, and climate of the survey area.

History and Settlement

Lincoln County was established on February 23, 1867, by an act passed by the West Virginia Legislature (Lambert 1991). The county was formed from portions of Kanawha, Boone, Putnam, Cabell, Logan, and Wayne Counties. Lincoln was the 53rd county formed of the present

Figure 1.—Location of Lincoln County in West Virginia.

55 counties comprising West Virginia. The county was named for Abraham Lincoln, the 16th president of the United States.

The first settlements in Lincoln County were established in about 1800. There probably were fewer than a dozen families residing within the present boundaries of Lincoln County in that year (Lambert 1991); however, there was a steady stream of immigrants arriving in the Ohio River valley at that time. The adjacent states of Kentucky and Ohio were established in 1791 and 1803, respectively. Many of the earliest settlers in Lincoln County were from the eastern or central part of Virginia. The primary settlements in the county at that time were along the Guyandotte and Mud Rivers, as well as Twelvepole Creek. The first building in the present area of Hamlin was built in 1802. It was the cabin of David Stephenson.

Farming

In 1997, Lincoln County had 214 farms, or about 20 percent fewer farms than in 1987. The average size of these farms was 128 acres (U.S. Department of Agriculture 1999). A total of 8,501 acres in the county was used as cropland. Of this acreage, about 2,229 acres, or 26 percent, was used for harvested crops. The main farm products in these areas were hay, tobacco, or grain crops. Livestock or poultry was raised on nearly half of the farms. The raising of beef cattle was the leading livestock enterprise. Sheep were also commonly raised. Most of the farm income in the county was derived from the sale of beef cattle or tobacco. Most farms were operated on a part-time basis.

Transportation Facilities

The transportation needs of Lincoln County are served by numerous county and state roads, including routes 3, 7, 10, 15, and 214, and U.S. Route 119, which is a four-lane highway. Railroad trackage is maintained in Lincoln County along the Guyandotte and Little Coal Rivers. The railroad system is used primarily for hauling coal from the mining region in the southern part of West Virginia. Lincoln County currently has no commercial airport facilities.

Relief and Drainage

Lincoln County is within two major land resource areas (MLRAs)—the Central Allegheny Plateau and the Cumberland Plateau and Mountains. The Central Allegheny Plateau MLRA encompasses roughly the northern half of Lincoln County. It consists of predominantly sandstone, shale, and siltstone with some layers of calcareous rocks. The landscape is characterized by nearly level or gently sloping valleys and sloping to steep ridgetops that are separated by long, steep side slopes. Local relief in this part of the county generally ranges from about 400 to 500 feet.

The Cumberland Plateau and Mountains MLRA encompasses the southern half of the county. Geologic strata generally consist of interbedded sandstone, siltstone, and shale with some coal and limestone strata. Since the southern half of the county has a higher percentage of more resistant sandstone bedrock, it exhibits more rugged topography than the northern portion. This area is characterized by some sloping plateau remnants along the summits of ridges, but most of the area is rugged with narrow flood plains along streams and narrow, moderately steep to very steep ridgetops separated by long, very steep side slopes with numerous bedrock escarpments and rock outcroppings and stony or bouldery surfaces. Local relief in the southern part of the county generally ranges from about 600 to 800 feet.

The elevation in Lincoln County ranges from about 535 feet along the Guyandotte River at the Cabell County line to 1,686 feet in the southeastern part of Lincoln County along the Boone County line.

Numerous large streams pass through the county and, together with their tributaries, constitute its drainage. The northeastern part of the county is drained by the Little Coal River, which flows in a northeasterly direction, forming first the dividing line between Lincoln and Boone Counties and then between Lincoln and Kanawha Counties, before emptying into Big Coal River. The Mud River drains the northern, central, and southeastern portions of the county. It has its source in Boone County and flows generally to the northwest through Lincoln County before it empties into the Guyandotte River a short distance below Barboursville, in Cabell County. Its principal tributaries in Lincoln County are the Middle Fork and Trace Fork. With a total length of only 77 miles and a fall of 328 feet, the Mud River is relatively meandering and sluggish.

The Guyandotte River and its major tributaries drain most of the southern and western parts of the county. The Guyandotte River, which has its source in Raleigh County, to the southeast, flows through Wyoming, Mingo, and Logan Counties before entering southern Lincoln County. It flows in a general north-northwest direction through Lincoln County before emptying into the Ohio River near Huntington, West Virginia, in Cabell County. In the mid-19th century, the Guyandotte River was used for transporting coal to the Ohio River. The construction of the railroad along the Guyandotte River to the town of Logan, in Logan County, caused commercial transportation on the river to be abandoned. Some of the major tributaries of the Guyandotte River in Lincoln County include Little Hart, Hart, Green Shoals, Fourteen Mile, and Big Ugly Creeks.

Natural Resources

In addition to soil and water, other important natural resources in Lincoln County are coal, timber, oil, and gas. Sand and gravel are resources of minor extent. Ground water and surface water supplies throughout the county generally meet domestic water demands. Most of the towns and many rural areas are served by community water systems. Wells and cisterns provide water to many rural homes and farms. Numerous farm ponds, small lakes, and streams throughout Lincoln County provide water for livestock, wildlife, and limited irrigation, as well as for recreational use and wildlife habitat. Watering troughs have been developed at many of the local springs to provide water for livestock. The 330-acre Upper Mud River Lake is the largest lake in the county and provides recreational opportunities such as boating, fishing, and water skiing. The Guyandotte River also provides recreational opportunities and is a source of water.

Woodland makes up 246,000 acres, or nearly 88 percent of the total land area in the county (U.S. Department of Agriculture 1999). Timber production contributes to the local economy by providing employment in timber harvesting and at numerous sawmills throughout the county. The primary trees harvested are northern red oak, white oak, yellow-poplar, and hemlock, with some black walnut. Eastern redcedar is harvested for fenceposts and some lumber.

Other natural resources in Lincoln County include oil, gas, and coal. Gas wells are scattered throughout the county. In 2003, there were 1,918 gas wells in Lincoln County that produced about 9.4 million cubic feet of gas. Most of the oil reserves are in the northern half of the county, especially near Griffithsville. Annual oil production for the estimated 260 wells was 57,146 barrels in 2003 (West Virginia Geological and Economic Survey n.d.). Original estimates of mineable coal reserves in the county were 1.7 billion tons (fig. 2).

Figure 2.—Coal mining in the southern part of Lincoln County.

Sand and gravel are dredged from the bed of the Guyandotte River and are used for general construction purposes, but deleterious amounts of coal and weathered clasts hinder their use as high-grade concrete aggregate.

Geology

All of the exposed rock in Lincoln County is of the Pennsylvanian period of the Paleozoic era. These rocks are sedimentary in origin and display little local folding or disturbance. They tend to have a regional dip to the northwest. Unconsolidated Quaternary deposits cover the valley floors along the streams. The valleys of the Guyandotte and Mud Rivers are characterized by a general southeast to north-northwest orientation.

The major subdivisions of rock strata exposed in Lincoln County, listed from the youngest to the oldest, consist of the Monongahela and Conemaugh Groups of the upper Pennsylvanian period, the Allegheny Formation of the middle Pennsylvanian period, and the Kanawha Formation of the Pottsville Group of the lower Pennsylvanian period.

The northern half of the county is characterized by interbedded red and gray shale, siltstone, and sandstone of the Conemaugh Group with some thin strata of limestone and coal. The ridgetops in the northwestern part of the county are capped by the similar strata of the Monongahela Group. Most of the soils associated with the rock strata of the Conemaugh and Monongahela Groups formed in residuum. Examples are the Upshur and Gilpin soils.

The southern half of the county is characterized by interbedded sandstone, siltstone, shale, limestone, and coal of the Conemaugh Group and the shale, coal,

and massive sandstones of the Allegheny and Kanawha Formations. The thickness of the rock strata of the Conemaugh Group lessens as the strata extend to the south, and the rock strata only cap ridgetops in the southernmost part of the county. Gilpin and Wharton soils formed in residuum and are common in the southern half of the county.

The southern half of the county has a high percentage of sandstone bedrock and exhibits more rugged topography than the northern half. Rock strata of the Allegheny and Kanawha Formations are dominant in the southern part. Since they occupy a higher position in the stratigraphic column, rock strata of the Allegheny Formation exert a greater influence on the soils in the southern portion of the county. The older Kanawha Formation outcrops on the lower hillsides, generally in the southern quarter of the county, and along the Guyandotte and Mud Rivers in the central portion of the county. Matewan, Highsplint, and Cloverlick are examples of soils forming from materials from the Allegheny and Kanawha Formations that contain more sandstone than soils typically found in the northern portion of Lincoln County. Soils formed in colluvium are also more extensive in the southern portion of the county. Examples are the Highsplint and Cloverlick soils.

Several coal seams have been mined both commercially and for local use in Lincoln County, primarily in the southern half of the county. Within the Allegheny Formation, the No. 5 Block has been mined most extensively, but the Upper Freeport and North Coalburg have also been mined. Coal seams within the Kanawha Formation include the Stockton-Lewiston (or Belmont), Winifrede, and Peerless. The latter three have generally been deep mined because of their greater depth in Lincoln County. Most of the larger mining operations are in the southwestern and southeastern parts of the county.

Climate

Winters are cold and a moderate amount of snow is received throughout Lincoln County. Intermittent thaws preclude a long-lasting snow cover. Summers are fairly warm on hillsides and in the valleys. Rainfall is evenly distributed throughout the year, and the normal annual precipitation is adequate for all crops commonly grown in the county.

Table 1 gives data on temperature and precipitation as recorded at Logan, West Virginia, in adjoining Logan County, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 37.1 degrees F and the average daily minimum temperature is 27.5 degrees. The lowest temperature on record, which occurred at Williamson, in adjoining Mingo County, on January 22, 1985, is -18 degrees. In summer, the average temperature is 74.9 degrees and the average daily maximum temperature is 85.9 degrees. The highest recorded temperature, which occurred at Williamson on August 18, 1988, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 47 inches. Of this, about 29 inches, or 62 percent, usually falls in April through October. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through October is less than 18 inches. The two heaviest 1-day rainfalls during the period of record

were 4.02 inches at Logan on August 14, 1976, and 4.62 inches at Williamson on August 2, 1945. Thunderstorms occur on about 44 days each year, and most occur between April and August.

The average seasonal snowfall is about 17.5 inches. The greatest snow depth at any one time during the period of record was 20 inches. On the average, 12 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 45 percent in April and about 60 percent in July. Humidity is higher at night, and the average at dawn is about 75 percent in the winter and early spring and about 90 percent in the summer and early fall. The sun shines about 60 percent of the time possible in summer and 40 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 8 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that

they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of two or more major soils and some minor soils. It is named for the major soils. The soils making up one map unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Highsplint-Matewan-Cloverlick

Very deep and moderately deep, very steep and steep, well drained and somewhat excessively drained soils that have a channery, loamy subsoil; on ridges and side slopes of hills and mountains

This map unit is dominant throughout the southern part of Lincoln County. The landscape is characterized by steep, sharp-crested mountains and hills separated by deep, narrow, nearly level to sloping valleys. Slopes range from 25 to 75 percent but are dominantly 35 to 65 percent. Rock outcrop commonly occurs in this map unit in the form of ledges, bluffs, and chimney rock at the head of drainageways and along points of ridges. It consists of interbedded sandstone, siltstone, shale, and coal. Stones and boulders are also common in areas of the map unit.

This map unit makes up about 35 percent of the county. It is about 27 percent Highsplint and similar soils, 21 percent Matewan and similar soils, 11 percent Cloverlick and similar soils, and 41 percent soils of minor extent (fig. 3).

Highsplint soils are very deep and well drained. They are on slightly concave to convex middle and lower side slopes, on footslopes, on benches, and in coves with dominantly warm aspects (exposures generally to the east, south, and west). Slopes range from 35 to 65 percent. These soils formed in channery, loamy colluvium and are underlain by sandstone. Typically, they have a surface layer of loam and a subsoil of very channery loam or silt loam. Permeability is moderate or moderately rapid.

Matewan soils are moderately deep and well drained or somewhat excessively drained. They are on convex side slopes, ridge summits, nose slopes, and shoulders. Slopes range from 35 to 65 percent. These soils formed in channery, loamy residuum and are underlain by sandstone and siltstone. They generally are associated with areas of rock outcrop. Typically, they have a surface layer of sandy loam and a subsoil of channery or very channery sandy loam. Permeability is moderately rapid or rapid.

Cloverlick soils are very deep and well drained. They are on concave to slightly convex middle and lower side slopes, on footslopes, and on benches with dominantly cool aspects (generally northwest to northeast exposure). Slopes range from 35 to

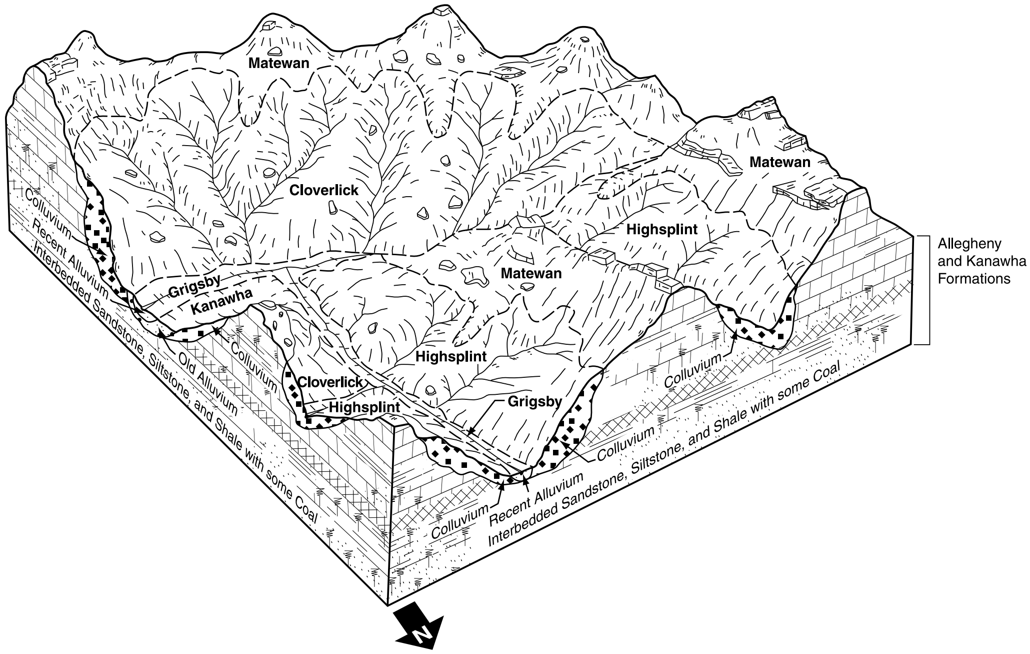

Figure 3.—Typical pattern of soils and parent material in an area of the Highsplint-Matewan-Cloverlick general soil map unit.

65 percent. These soils formed in channery, loamy colluvium and are underlain by sandstone. Typically, they have a surface layer of loam and a subsoil of very channery loam or silt loam. Permeability is moderate or moderately rapid.

Of minor extent in this map unit are the Gilpin, Hazleton, Sharpcrest, and Wharton soils on ridges of hills and mountains; Shelocta and Pineville soils on hillslopes; and Grigsby soils on flood plains.

The major soils in this map unit are not suited to cultivated crops, hay, or pasture but are well suited to woodland and habitat for woodland wildlife. Most areas are in second growth hardwoods. The native trees on side slopes having warm aspects and on ridgetops are predominantly white oak, black oak, red maple, and hickory. Virginia pine and shortleaf pine are in a few small areas. Yellow-poplar, white oak, American beech, black locust, American basswood, and black walnut are in areas with cool aspects. Productivity is moderate or moderately high on warm aspects and high on cool aspects. The hazard of erosion, the equipment limitation, the seedling mortality rate, and plant competition are concerns in managing timber production.

These soils are not suited to most urban uses because of the steepness of slope and the rock outcrop. In addition, the soils are susceptible to landslides if they are undercut during the construction of roads or buildings.

2. Rayne-Gilpin-Matewan

Moderately deep and deep, very steep and steep, well drained and somewhat excessively drained soils that have a loamy or channery, loamy subsoil; on ridges and side slopes of hills

This map unit is dominant throughout the central part of the county. The landscape is characterized by broad, strongly sloping ridgetops; very steep side slopes broken by long, narrow, moderately steep benches; and sloping to steep footslopes. Slopes range from 15 to 65 percent but are dominantly 35 to 65 percent. Rock outcrop, stones, and boulders are common along points of ridges.

This map unit makes up about 34 percent of the county. It is about 40 percent Rayne and similar soils, 21 percent Gilpin and similar soils, 19 percent Matewan and similar soils, and 20 percent soils of minor extent (fig. 4).

Rayne soils are deep and well drained. They are on slightly linear to convex middle and lower side slopes and on benches. Slopes range from 35 to 65 percent. These soils formed in loamy residuum and are underlain by interbedded shale, siltstone, and fine grained sandstone. Typically, they have a surface layer of silt loam and a subsoil of channery silt loam or silty clay loam. Permeability is moderate.

Gilpin soils are moderately deep and well drained. They are on convex, strongly sloping summits of ridges, on linear to slightly convex side slopes of hills, and on convex shoulder slopes. Slopes range from 15 to 65 percent but are dominantly 35 to 65 percent. These soils formed in loamy residuum and are underlain by interbedded shale, siltstone, and fine grained sandstone. Typically, they have a surface layer of silt loam and a subsoil of silt loam or silty clay loam. Permeability is moderate.

Matewan soils are moderately deep and are well drained or somewhat excessively drained. They are on convex nose slopes, shoulders, and side slopes of hills. Slopes range from 25 to 65 percent but are dominantly 35 to 65 percent. These soils formed in channery, loamy residuum and are underlain by sandstone and siltstone. They generally are associated with areas of rock outcrop. Typically, they have a surface layer of sandy loam and a subsoil of channery or very channery sandy loam. Permeability is moderately rapid or rapid.

Of minor extent in this map unit are the Upshur, Latham, and Lily soils on hills; Shelocta soils on footslopes; and Sensabaugh soils on flood plains. A few small urban areas are near major streams.

The major soils in this map unit are not suited to cultivated crops, hay, or pasture but are well suited to woodland and habitat for woodland wildlife. Native trees are predominantly white oak, black oak, yellow-poplar, American beech, black walnut, red maple, and hickory. Virginia pine and shortleaf pine are in a few small areas.

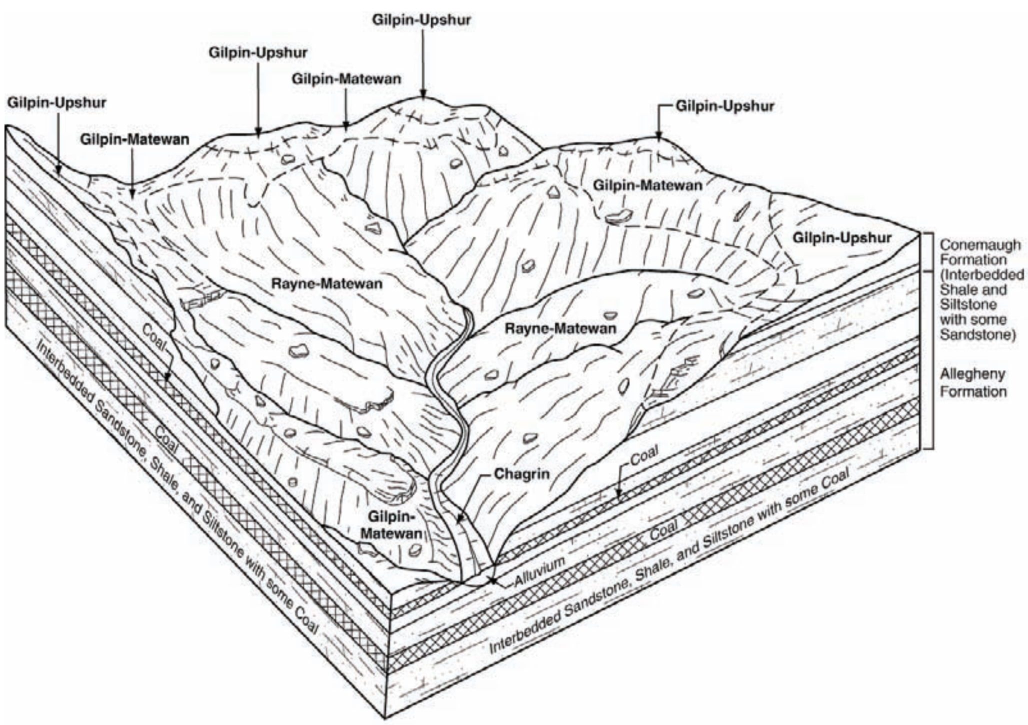

Figure 4.—Typical pattern of soils and parent material in an area of the Rayne-Gilpin-Matewan general soil map unit.

Productivity is moderate or moderately high. The hazard of erosion, the equipment limitation, the seedling mortality rate, and plant competition are concerns in managing timber production.

The main limitations affecting most urban uses are the steepness of slope, stones and boulders on the soil surface, and downslope soil movement.

3. Grigsby-Chagrin-Lobdell-Orrville

Very deep, nearly level, well drained to somewhat poorly drained soils that have a loamy subsoil; on flood plains

This map unit is along the major drainageways throughout Lincoln County. The landscape is characterized by narrow flood plains and terraces between hills and mountains. Some of the flood plains and terraces are wide along the major rivers and creeks. Slopes range from 0 to 8 percent but are dominantly 0 to 3 percent.

Most of the acreage of this map unit is used for cultivated crops, hay, or urban development. A few areas are used as pasture. The urban development is mostly in areas of Hamlin or West Hamlin.

This map unit makes up about 4 percent of the survey area. It is about 17 percent Grigsby and similar soils, 15 percent Chagrin and similar soils, 9 percent Lobdell and similar soils, 8 percent Orrville and similar soils, 9 percent water, and 42 percent soils of minor extent.

Grigsby soils are very deep and well drained. They are on nearly level flood plains along major streams and low terraces throughout the county. Slopes range from 0 to 3 percent. These soils formed in alluvium washed from acid and limy soils on uplands. Typically, they have a surface layer of fine sandy loam and a subsoil of sandy loam or loamy sand. Permeability is moderately rapid.

Chagrin soils are very deep and well drained. They are on nearly level flood plains. Slopes range from 0 to 3 percent. These soils formed in loamy alluvium washed from acid and limy soils on uplands. Typically, they have a surface layer of loam and a subsoil of loam or silt loam. Permeability is moderate.

Lobdell soils are very deep and moderately well drained. They are on nearly level flood plains along small streams and intermittent drainageways throughout the county. Slopes range from 0 to 3 percent. These soils formed in recent loamy alluvium washed from acid and limy soils on uplands. Typically, they have a surface layer of loam or silt loam and a subsoil of loam or silt loam. Permeability is moderate.

Orrville soils are very deep and somewhat poorly drained. They are on nearly level flood plains along small streams and intermittent drainageways throughout the county. Slopes range from 0 to 3 percent. These soils formed in recent loamy alluvium washed from acid and limy soils on uplands. Typically, they have a surface layer of loam or silt loam and a subsoil of loam, silt loam, or silty clay loam. Permeability is moderate.

Of minor extent in this map unit are the Nelse and Moshannon soils on flood plains; Sensabaugh soils on flood plains and alluvial fans; Kanawha soils on terraces; and Udorthents and Urban land on flood plains and terraces. The areas on flood plains generally have been filled so that construction sites are above normal flood levels.

The major soils in this map unit are suited to cultivated crops, hay, and pasture. The hazard of erosion is slight or moderate. Flooding in areas of the low flood plain soils sometimes damages crops, but most of the flooding is during the winter or early spring, before crops are planted. The major soils are suited to trees; however, except for areas on riverbanks along major streams, little of the acreage is wooded.

A seasonal high water table restricts the use of logging equipment in some areas.

The main limitations affecting most urban uses in areas of the major soils are the flooding and low strength. The limitations affecting most urban uses in areas of the minor soils include the frequent flooding, a seasonal high water table, slow permeability, a severe hazard of slippage, the limited depth to bedrock, a high shrink-swell potential, and low strength.

4. Kaymine-Fiveblock

Very deep, nearly level to very steep, well drained and somewhat excessively drained soils that have a channery, loamy substratum; on ridges and side slopes of hills and mountains

This map unit is in the southeast and southwest corners of the county, in areas that have been mined for coal. The landscape is characterized by very steep and steep mountains that have been reshaped by coal mining operations. Nearly level to sloping broad ridge crests and narrow benches created by surface mining are common in areas of this map unit. Slopes range from 0 to 65 percent but are dominantly 35 to 65 percent. Rock outcrop commonly occurs in this map unit in the form of ledges, bluffs, and chimney rock at the head of drainageways and along points of ridges. It consists of interbedded sandstone, siltstone, shale, and coal. Stones and boulders are also common in areas of the map unit.

This map unit makes up about 2 percent of the survey area. It is about 43 percent Kaymine and similar soils, 22 percent Fiveblock and similar soils, and 35 percent soils of minor extent.

Kaymine soils are very deep and well drained. They are on nearly level and gently sloping benches, strongly sloping to very steep side slopes of hills, and very steep outslopes in areas that were surface-mined for coal. Slopes range from 0 to 65 percent. These soils formed in nonacid regolith from the surface mining of coal. Typically, they have a surface layer of channery loam and a substratum of very channery loam or silt loam. Permeability is moderate or moderately rapid.

Fiveblock soils are very deep and well drained. They are on nearly level and gently sloping benches, strongly sloping to very steep side slopes of hills, and very steep outslopes in areas that were surface-mined for coal. Slopes range from 0 to 65 percent. These soils formed in sandstone-dominated, nonacid regolith from the surface mining of coal. Typically, they have a surface layer of channery loam and a substratum of very channery sandy loam or loamy sand. Permeability is moderately rapid or rapid.

Of minor extent in this map unit are the Gilpin, Matewan, Rayne, and Latham soils on ridges of hills and mountains and Pineville and Guyandotte soils on hillslopes.

The major soils in this map unit are not suited to cultivated crops, hay, or pasture but are well suited to woodland and habitat for woodland wildlife. Most areas are in second growth hardwoods. The native trees on side slopes having warm aspects and on ridgetops are predominantly white oak, black oak, red maple, and hickory. Virginia pine and shortleaf pine are in a few small areas. Yellow-poplar, white oak, American beech, black locust, American basswood, and black walnut are in areas with cool aspects. Productivity is moderate or moderately high on warm aspects and high on cool aspects. The hazard of erosion, the equipment limitation, the seedling mortality rate, and plant competition are concerns in managing timber production.

These soils are not suited to most urban uses because of the steepness of slope and the rock outcrop. In addition, the soils are susceptible to landslides if they are undercut during the construction of roads or buildings.

5. Gilpin-Upshur

Moderately deep and deep, moderately steep to very steep, well drained soils that have a loamy or clayey subsoil; on ridges and side slopes of hills

This map unit is in the northern and northeastern parts of the county. The landscape is characterized by broad, gently sloping and strongly sloping ridgetops and steep hillsides separated by deep, narrow, nearly level to sloping valleys (fig. 5). Slopes range from 15 to 65 percent but are dominantly 25 to 65 percent. The soils in this map unit are underlain by acid to alkaline interbedded siltstone, shale, and sandstone.

These soils are poorly suited to development because of the steep slopes and a severe hazard of slippage. Most of the acreage of this map unit is used as woodland. Some areas on the less sloping, lower side slopes and on footslopes have been cleared and are used for hay or pasture.

This map unit makes up about 25 percent of the county. It is about 46 percent Gilpin and similar soils, 20 percent Upshur and similar soils, and 34 percent soils of minor extent (fig. 6).

Gilpin soils are moderately deep and well drained. They are on linear or slightly convex summits of ridges, on side slopes, and on convex shoulder slopes. Slopes range from 8 to 65 percent. These soils formed in loamy residuum and are underlain by interbedded shale, siltstone, and fine grained sandstone. Typically, they have a surface layer of silt loam and a subsoil of channery silt loam or channery silty clay loam. Permeability is moderate.

Figure 5.—A typical landscape in the Gilpin-Upshur general soil map unit.

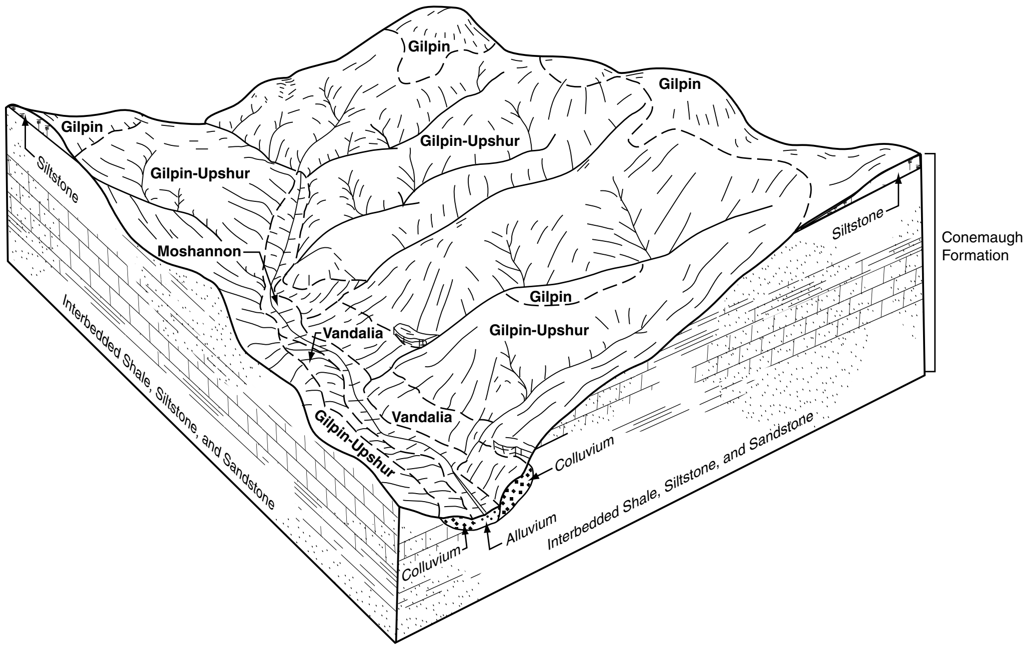

Figure 6.—Typical pattern of soils and parent material in an area of the Gilpin-Upshur general soil map unit.

Upshur soils are deep and well drained. They are on linear or slightly convex summits of ridges, on side slopes of hills, and on benches. Slopes range from 8 to 65 percent. These soils formed in clayey residuum and are underlain by lime-influenced shale. Typically, they have a surface layer of silt loam and a subsoil and substratum of silty clay or clay. Permeability is slow to moderate.

Of minor extent in this map unit are the Rayne, Latham, Sharpcrest, and Matewan soils on ridges of hills; Shelocta and Beech soils on hillslopes; Sensabaugh and Moshannon soils on flood plains; and Udorthents in areas that have been excavated, graded, or filled. A few small urban areas are near streams.

The major soils in this map unit are poorly suited to cultivated crops, hay, and pasture but are well suited to woodland and habitat for woodland wildlife. Native trees are predominantly white oak, black oak, yellow-poplar, American beech, black walnut, red maple, and hickory. Productivity is moderate or moderately high on warm aspects and high on cool aspects. The hazard of erosion, the equipment limitation, the seedling mortality rate, and plant competition are concerns in managing timber production.

These soils are not suited to most urban uses because of the steepness of slope and the rock outcrop. In addition, the soils are susceptible to landslides if they are undercut during the construction of roads or buildings.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Chagrin loam, frequently flooded, is a phase of the Chagrin series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Gilpin-Wharton complex, 15 to 35 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Berks-Shelocta association, very steep, extremely stony, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Kaymine and Fiveblock soils, 0 to 8 percent slopes, extremely stony, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Urban land is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AgB—Allegheny loam, bedrock substratum, 3 to 8 percent slopes

Setting

Landscape position: On high strath terraces and alluvial fans along the larger streams; throughout the county

Composition

Allegheny and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown loam

Subsoil:
8 to 14 inches—yellowish brown loam
14 to 30 inches—strong brown clay loam
30 to 36 inches—strong brown sandy loam

Substratum:
36 to 50 inches—strong brown sandy loam

Bedrock:
50 inches—shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: 40 to 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface
- Monongahela soils

Use and Management

Uses: Most areas of this Allegheny soil are used for row crops, such as tobacco or corn. Some are used as hayland or pasture.

Cropland
Suitability: Well suited
Management considerations:
- Erosion is a moderate hazard in unprotected areas if slopes are more than 8 percent.
- A crop rotation that includes grasses and legumes or small grain helps to control runoff and water erosion.

Pasture and Hayland
Suitability: Well suited
Management considerations:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are the major management concerns in pastured areas.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: High
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Competing vegetation can generally be controlled by mechanical means.

Community Development
Suitability: Well suited

Management considerations:
- This soil has few, if any, limitations that affect community development.

Interpretive Groups

Land capability classification: 2e
Woodland ordination symbol: 9A
Prime farmland: Yes
Hydric soil: No

AgC—Allegheny loam, bedrock substratum, 8 to 15 percent slopes

Setting

Landscape position: On high strath terraces and alluvial fans along the larger streams; throughout the county

Composition

Allegheny and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown loam

Subsoil:
8 to 14 inches—yellowish brown loam
14 to 30 inches—strong brown clay loam
30 to 36 inches—strong brown sandy loam

Substratum:
36 to 50 inches—strong brown sandy loam

Bedrock:
50 inches—shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 6.0 feet

Inclusions

Limiting inclusions:
- Soils with slopes of more than 15 percent

- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface
- Monongahela soils

Use and Management

Uses: Most areas of this Allegheny soil are used for row crops, such as tobacco or corn. Some are used as hayland or pasture.

Cropland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- A crop rotation that includes grasses and legumes or small grain helps to control runoff and water erosion.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are the major management concerns in pastured areas.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: High
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Erosion is a severe hazard on logging roads and skid trails.
- Competing vegetation can generally be controlled by mechanical means.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.

Community Development
Suitability: Suited
Management considerations:
- The hazard of erosion and sedimentation are management concerns on construction sites and roadbanks.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.

Interpretive Groups

Land capability classification: 3e
Woodland ordination symbol: 9A
Prime farmland: No
Hydric soil: No

BeD—Beech loam, 15 to 25 percent slopes

Setting

Landscape position: On footslopes and colluvial fans and in coves; in the eastern and northern parts of the county

Composition

Beech and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 7 inches—brown loam

Subsoil:
7 to 22 inches—yellowish brown channery loam
22 to 36 inches—strong brown, mottled channery clay loam
36 to 52 inches—yellowish brown, mottled very channery loam

Substratum:
52 to 65 inches—strong brown and light gray extremely channery loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 36 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Upshur soils
- Gilpin soils
- Soils with slopes of more than 25 percent
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface
- Shallow soils

Use and Management

Uses: Most areas of this Beech soil are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- The seasonal wetness may delay tillage and planting in the spring.
- A crop rotation system that includes grasses and legumes or small grain helps to control runoff and water erosion.

- A subsurface drainage system can help to overcome the wetness if a suitable outlet is available.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, a planned grazing system, and deferment of grazing during wet periods help to keep the pasture in good condition.
- Grazing should be deferred in the spring until the soil is firm.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Plant competition is severe if openings are made in the canopy.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion and ensure the safe operation of logging equipment.
- Carefully managed reforestation helps to control undesirable understory plants.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal high water table, the hazard of slippage, and the slope are limitations affecting building site development and the construction of local roads and streets.
- Installing foundation drains, sealing foundations, and backfilling with porous materials help to prevent the damage caused by wetness.
- Care should be taken to minimize disturbance of the soil because of the hazard of slippage.
- Land shaping and grading help to overcome the slope.
- Construction of roads on the contour helps to overcome the slope.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

BeE—Beech loam, 25 to 35 percent slopes

Setting

Landscape position: On footslopes and colluvial fans and in coves; in the eastern and northern parts of the county

Composition

Beech and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 7 inches—brown loam

Subsoil:
7 to 22 inches—yellowish brown channery loam
22 to 36 inches—strong brown, mottled channery clay loam
36 to 52 inches—yellowish brown, mottled very channery loam

Substratum:
52 to 65 inches—strong brown and light gray extremely channery loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 36 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to moderately acid
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Vandalia soils
- Gilpin soils
- Soils with slopes of more than 35 percent
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface
- Shallow soils

Use and Management

Uses: Most areas of this Beech soil are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Unsuited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- Because of the slope, this soil is generally unsuited to cultivated crops.

Pasture and Hayland
Suitability: Poorly suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.

- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Grazing should be deferred in the spring until the soil is firm.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Plant competition is severe if openings are made in the canopy.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion and ensure the safe operation of logging equipment.
- Carefully managed reforestation helps to control undesirable understory plants.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal high water table, the hazard of slippage, and the slope are limitations affecting building site development and the construction of local roads and streets.
- Installing foundation drains, sealing foundations, and backfilling with porous materials help to prevent the damage caused by wetness.
- Care should be taken to minimize disturbance of the soil because of the hazard of slippage.
- Land shaping and grading help to overcome the slope.
- Construction of roads on the contour helps to overcome the slope.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 4R on south-facing slopes; 5R on north-facing slopes
Prime farmland: No
Hydric soil: No

BSF—Berks-Shelocta association, very steep, extremely stony

Setting

Landscape position: Berks—on ridges and the upper backslopes of hills dominated by siltstone and shale bedrock; Shelocta—on the middle and lower backslopes of hills and on footslopes and toeslopes dominated by siltstone and shale bedrock

Composition

Berks soil: 40 percent
Shelocta soil: 35 percent
Dissimilar inclusions: 25 percent

Typical Profile

Berks
Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—brown channery loam

Subsurface layer:
5 to 18 inches—yellowish brown extremely channery silt loam
18 to 22 inches—strong brown extremely channery silt loam

Substratum:
22 to 28 inches—strong brown extremely channery silt loam

Bedrock:
28 inches—strong brown, fractured shale

Shelocta
Organic layer:
0 to 0.5 inch—moderately decomposed plant material

Surface layer:
0.5 inch to 4 inches—brown silt loam

Subsurface layer:
4 to 11 inches—yellowish brown silty clay loam

Subsoil:
11 to 39 inches—strong brown channery silty clay loam
39 to 50 inches—brown channery silty clay loam
50 to 80 inches—dark yellowish brown very channery silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Berks—very low or low; Shelocta—moderate or high
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 3 to 5 percent of the surface covered by stones
Rockiness: None
Natural fertility: Berks—low; Shelocta—low or medium
Reaction: In unlimed areas, extremely acid to slightly acid in the Berks soil and strongly acid to extremely acid in the Shelocta soil
Organic matter content in the surface layer: Berks—moderately low; Shelocta—moderate
Surface runoff: Berks—medium or high; Shelocta—high
Depth to bedrock: Berks—20 to 40 inches; Shelocta—more than 60 inches

Inclusions

Limiting inclusions:
- Small areas of Matewan, Highsplint, and Guyandotte soils
- Soils with slopes of more than 80 percent
- Soils that are less than 20 inches deep over bedrock and in similar landscape positions

- Soils that have more stones and boulders on the surface

Use and Management

Uses: Most areas of this map unit are used as woodland. A few have been surface-mined for coal. A few small areas of the Shelocta soil are used as pasture.

Cropland
Suitability: Unsuited
Management considerations:
- This map unit should not be used for cultivated crops because of the steepness of slope, the severe hazard of erosion, and the rock fragments on the soil surface.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- The steepness of slope, the severe hazard of erosion if the sod is removed by overgrazing, and the rock fragments on the soil surface are the main management concerns.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Berks—moderate on south-facing slopes and moderately high on north-facing slopes; Shelocta—moderately high on all aspects
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Special care is needed when logging roads and landings are layed out and logging equipment is operated because of the slope.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.
- Because of the stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- The included areas of rock outcrop should be considered when the location of roads and landing sites is planned.

Community Development
Suitability: Unsuited
Management considerations:
- The steepness of slope and the severe hazard of erosion are the main management concerns.
- Building roads and streets on the contour helps to overcome the slope on sites for local roads and streets.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: Berks—4R on north-facing slopes and 3R on south-facing slopes; Shelocta—5R on north-facing slopes and 4R on south-facing slopes
Prime farmland: No
Hydric soil: No

CeF—Cedarcreek-Rock outcrop complex, very steep, extremely stony

Setting

Landscape position: Cedarcreek—on nearly level or gently sloping benches and very steep outslopes; Rock outcrop—nearly vertical highwalls; in areas that have been surface-mined for coal

Note: The Cedarcreek soil and Rock outcrop occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Cedarcreek and similar soils: 85 percent (60 percent outslopes and 25 percent benches)

Rock outcrop and similar inclusions: 15 percent

Typical Profile

Cedarcreek

Surface layer:

0 to 3 inches—brown very channery loam

Substratum:

3 to 65 inches—mixed yellowish brown and brownish yellow, mottled very channery loam

Rock outcrop

The Rock outcrop occurs as nearly vertical highwalls of exposed bedrock that rise 25 to 100 feet above the bench floor.

Soil Properties and Qualities

Cedarcreek

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Low to high
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 5 to 10 percent of the surface covered by stones
Rockiness: About 15 percent rock outcrop
Natural fertility: Low or medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Very low
Surface runoff: Very low on the benches and very high on the outslopes
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:

- Soils that have more than 15 percent of their surface covered by stones and boulders
- Soils that are less than 20 inches deep over bedrock

Use and Management

Uses: Open areas of this map unit support grasses, legumes, and autumn olive. The remaining acreage is used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- Because of steepness of slope, this map unit is generally unsuited to cultivated crops.
- In most areas, rock fragments in the surface layer and stones at the surface interfere with tillage and planting.
- Erosion is a severe hazard if this map unit is used for cultivated crops.

Pasture and Hayland
Suitability: Unsuited
Management considerations:
- Erosion is a severe hazard in areas used as pasture or hayland.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the stoniness.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major management concerns in areas used as pasture or hayland.

Woodland
Potential productivity: Moderately high
Management considerations:
- The droughtiness of this Cedarcreek soil can result in a high seedling mortality rate in tree plantations.
- Large stones at the surface may interfere with tree harvesting equipment in some areas of this map unit.
- The slope is a management concern.
- Erosion is a severe hazard affecting logging roads and skid trails.
- Seedlings should be mulched where practical.
- Planting when the soil is moist reduces the seedling mortality rate.
- Because of stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Constructing roads and skid trails on the contour helps to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- The stones and boulders at the surface, the potential for differential settling, the steepness of slope, and the Rock outcrop are the main management concerns.
- Onsite investigation and testing are necessary to determine the limitations and potential for most urban uses.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

Ch—Chagrin loam, frequently flooded

Setting

Landscape position: On low flood plains along small streams and intermittent drainageways; throughout the county

Composition

Chagrin and similar soils: 80 percent

Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown loam

Subsoil:
7 to 23 inches—dark yellowish brown loam
23 to 56 inches—yellowish brown silt loam

Substratum:
56 to 65 inches—yellowish brown silt loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to neutral
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Lindside soils
- Middlebury soils
- Orrville soils
- Holly soils
- Lobdell soils

Use and Management

Uses: Many areas of this Chagrin soil have been cleared and are used for cultivated crops, mainly corn, or for gardens, hay, or pasture. Some are wooded.

Cropland
Suitability: Well suited
Management considerations:
- The flooding frequently delays fieldwork or damages crops.
- This soil is subject to streambank erosion in some areas.
- Runoff from the adjacent hillsides can cause scouring and sedimentation in areas of this soil.
- Protecting the soil against flooding and maintaining a drainage system help to prevent crop damage.
- If a good surface drainage system is installed, late-planted crops can be grown after the normal flooding period is over.
- Leaving a border of trees along streams helps to prevent streambank erosion.
- Diversions help to control runoff and overwash from adjacent upland backslopes.

Pasture and Hayland
Suitability: Well suited
Management considerations:
- The flooding deposits debris on the grassland.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding helps desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.

Community Development
Suitability: Poorly suited
Management considerations:
- The frequent flooding and the stream scouring and sedimentation are management concerns.
- Constructing roads, buildings, and houses on elevated, well compacted fill material helps to prevent the damage caused by flooding.
- Establishing a plant cover in unprotected areas and properly disposing of surface water help to control stream scouring and sedimentation.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: No
Hydric soil: No

CoA—Cotaco loam, 0 to 3 percent slopes

Setting

Landscape position: On low terraces along the major streams; throughout the county

Composition

Cotaco and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 12 inches—yellowish brown loam
12 to 17 inches—yellowish brown, mottled loam
17 to 28 inches—brownish yellow, mottled clay loam
28 to 39 inches—brownish yellow and light gray clay loam

Substratum:
39 to 50 inches—brownish yellow and light gray loam
50 to 65 inches—brownish yellow and light gray channery loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate

Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 30 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to neutral in the A and BA horizons and extremely acid to strongly acid in the Bt and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 3 percent
- Soils that have been disturbed by earthmoving equipment
- Guyan soils

Use and Management

Uses: Most areas of this Cotaco soil are used for hay or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management considerations:
- The flooding may damage crops early in the growing season.
- The seasonal wetness may delay tillage and planting in the spring.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed and flooding is controlled.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Competing vegetation generally can be controlled by mechanical means.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.

- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 4A
Prime farmland: Yes
Hydric soil: No

CoB—Cotaco loam, 3 to 8 percent slopes

Setting

Landscape position: On low terraces along the major streams; throughout the county

Composition

Cotaco and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 12 inches—yellowish brown loam
12 to 17 inches—yellowish brown, mottled loam
17 to 28 inches—brownish yellow, mottled clay loam
28 to 39 inches—brownish yellow and light gray clay loam

Substratum:
39 to 50 inches—brownish yellow and light gray loam
50 to 65 inches—brownish yellow and light gray channery loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 30 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to neutral in the A and BA horizons and extremely acid to strongly acid in the Bt and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Soils that have been disturbed by earthmoving equipment
- Guyan soils

Use and Management

Uses: Most areas of this Cotaco soil are used for hay or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management considerations:
- The flooding may damage crops early in the growing season.
- The seasonal wetness may delay tillage and planting in the spring.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed and flooding is controlled.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Competing vegetation can generally be controlled by mechanical means.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 2e
Woodland ordination symbol: 4A
Prime farmland: No
Hydric soil: No

CuB—Cotaco-Urban land complex, 3 to 8 percent slopes

Setting

Landscape position: On low terraces along the major streams; throughout the county
Note: The Cotaco soil and Urban land occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Cotaco and similar soils and Urban land: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Cotaco
Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 12 inches—yellowish brown loam
12 to 17 inches—yellowish brown, mottled loam
17 to 28 inches—brownish yellow, mottled clay loam
28 to 39 inches—brownish yellow and light gray clay loam

Substratum:
39 to 50 inches—brownish yellow and light gray loam
50 to 65 inches—brownish yellow and light gray channery loam

Urban land
The Urban land consists of areas where the surface is covered by works or structures, such as streets, houses, concrete, or other impervious material.

Soil Properties and Qualities

Cotaco
Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 30 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to neutral in the A and BA horizons and extremely acid to strongly acid in the Bt and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 8 percent
- Soils that have been disturbed by earthmoving equipment
- Guyan soils

Use and Management

Uses: This map unit is generally unsuited to farming and woodland. Most areas are used as sites for urban development. Open areas are used for lawns or a few home gardens.

Community Development
Suitability: Suited
Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Shallow excavations can cave in because some cutbanks are not stable.
- Low strength and the potential for frost action are management concerns on sites for local roads and streets.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by wetness.
- The trench walls of shallow excavations should be reinforced.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: Cotaco—not assigned; Urban land—8s
Woodland ordination symbol: Not assigned
Prime farmland: No
Hydric soil: No

CuC—Cotaco-Urban land complex, 8 to 15 percent slopes

Setting

Landscape position: On low terraces along the major streams; throughout the county
Note: The Cotaco soil and Urban land occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Cotaco and similar soils and Urban land: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Cotaco
Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 12 inches—yellowish brown loam
12 to 17 inches—yellowish brown, mottled loam
17 to 28 inches—brownish yellow, mottled clay loam
28 to 39 inches—brownish yellow and light gray clay loam

Substratum:
39 to 50 inches—brownish yellow and light gray loam
50 to 65 inches—brownish yellow and light gray channery loam

Urban land

The Urban land consists of areas where the surface is covered by works or structures, such as streets, houses, concrete, or other impervious material.

Soil Properties and Qualities

Cotaco

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 30 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to neutral in the A and BA horizons and extremely acid to strongly acid in the Bt and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Soils that have been disturbed by earthmoving equipment
- Guyan soils

Use and Management

Uses: This map unit is generally unsuitable as farmland or woodland. Most areas are used as sites for urban development. Open areas are used for lawns or a few home gardens.

Community Development

Suitability: Suited
Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Shallow excavations can cave in because some cutbanks are not stable.
- Low strength and the potential for frost action are management concerns on sites for local roads and streets.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by wetness.
- The trench walls of shallow excavations should be reinforced.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: Cotaco—not assigned; Urban land—8s
Woodland ordination symbol: Not assigned
Prime farmland: No
Hydric soil: No

DlD—Dormont-Latham complex, 15 to 25 percent slopes

Setting

Landscape position: On the upper side slopes of hills, narrow summits, and shoulders of ridges; in areas of the Conemaugh Formation; in the eastern part of the county
Note: The Dormont and Latham soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Dormont, Latham, and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Dormont
Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 11 inches—dark yellowish brown silt loam
11 to 23 inches—strong brown silty clay loam
23 to 40 inches—strong brown, mottled channery silty clay loam

Substratum:
40 to 54 inches—strong brown, mottled very channery silty clay loam

Bedrock:
54 to 59 inches—interbedded soft siltstone and shale

Latham
Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 7 inches—yellowish brown channery silt loam
7 to 16 inches—yellowish brown channery silty clay loam
16 to 23 inches—light yellowish brown, mottled channery silty clay
23 to 29 inches—yellowish brown, mottled channery silty clay

Substratum:
29 to 34 inches—yellowish brown, mottled channery silty clay

Bedrock:
34 to 39 inches—soft, interbedded acid gray shale and siltstone

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Dormont—moderately slow or slow; Latham—very slow
Available water capacity: Dormont—moderate; Latham—low
Depth to a seasonal high water table: 18 to 36 inches
Flooding: None
Shrink-swell potential: Dormont—moderate; Latham—high
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: None
Rockiness: None
Natural fertility: Medium

Reaction: In unlimed areas, very strongly acid to slightly acid in the Dormont soil and extremely acid to slightly acid in the A horizon and extremely acid or very strongly acid in the subsoil and substratum of the Latham soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: Dormont—40 to 60 inches; Latham—20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Areas where stones cover as much as 3 percent of the soil surface
- Soils that are severely eroded

Use and Management

Uses: Most areas of this map unit are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- The seasonal high water table restricts the rooting depth of some plants.
- Crop rotations that include grasses and legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Overgrazing increases the rate of runoff and the hazard of erosion and reduces the vigor of the sod.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.
- Proper stocking rates, a planned grazing system, and deferred grazing in spring until the soil is reasonably firm help to keep the pasture in good condition.

Woodland
Potential productivity: Dormont—moderately high on north-facing slopes and moderate on south-facing slopes; Latham—moderate
Management considerations:
- The seasonal high water table may restrict the rooting depth of some trees, resulting in a high seedling mortality rate and windthrow.
- Because the depth to bedrock restricts the root zone in areas of the Latham soil, trees may be uprooted during periods of strong wind or heavy snowfall.
- Erosion is a severe hazard on logging sites.
- The species that can tolerate the seasonal wetness should be selected for planting.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced.
- Building logging roads and trails on the contour and seeding the areas after they are no longer being used help to control erosion.
- The seasonal high water table restricts the use of equipment to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has an adequate snow cover.

Community Development
Suitability: Poorly suited
Management considerations:
- The depth to bedrock, the seasonal high water table, a hazard of slippage, and the slope are limitations affecting building site development in areas of the Latham soil.
- The high shrink-swell potential, low soil strength, and the slope are limitations on sites for local roads and streets in areas of the Latham soil.
- Installing foundation drains, sealing foundation walls, diverting water away from homesites, and backfilling with porous materials help to overcome the wetness affecting building site development.
- Constructing roads and streets along the contour on suitable subgrade material and installing a surface and subsurface drainage system help to overcome the limitations affecting local roads and streets.

Interpretive Groups

Land capability classification: Dormont—4e; Latham—6e
Woodland ordination symbol: Dormont—4R on north-facing slopes and 3R on south-facing slopes; Latham—3R on north-facing slopes and 2R on south-facing slopes
Prime farmland: No
Hydric soil: No

DIE—Dormont-Latham complex, 25 to 35 percent slopes

Setting

Landscape position: On the upper side slopes of hills, narrow summits, and shoulders of ridges; in areas of the Conemaugh Formation; in the eastern part of the county
Note: The Dormont and Latham soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Dormont, Latham, and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Dormont
Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 11 inches—dark yellowish brown silt loam
11 to 23 inches—strong brown silty clay loam
23 to 40 inches—strong brown, mottled channery silty clay loam

Substratum:
40 to 54 inches—strong brown, mottled very channery silty clay loam

Bedrock:
54 to 59 inches—interbedded soft siltstone and shale

Latham
Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 7 inches—yellowish brown channery silt loam

7 to 16 inches—yellowish brown channery silty clay loam
16 to 23 inches—light yellowish brown, mottled channery silty clay
23 to 29 inches—yellowish brown, mottled channery silty clay

Substratum:
29 to 34 inches—yellowish brown, mottled channery silty clay

Bedrock:
34 to 39 inches—soft interbedded acid gray shale and siltstone

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Dormont—moderately slow or slow; Latham—very slow
Available water capacity: Dormont—moderate; Latham—low
Depth to a seasonal high water table: 18 to 36 inches
Flooding: None
Shrink-swell potential: Dormont—moderate; Latham—high
Hazard of erosion: Severe
Slope class: Steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to slightly acid in the Dormont soil and extremely acid to slightly acid in the A horizon and extremely acid or very strongly acid in the subsoil and substratum of the Latham soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: Dormont—40 to 60 inches; Latham—20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Areas where stones cover as much as 3 percent of the soil surface
- Soils that are severely eroded

Use and Management

Uses: Most areas of this map unit are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Unsuited
Management considerations:
- The hazard of erosion is severe in unprotected areas.
- The seasonal high water table restricts the rooting depth of some plants.
- Because of the steepness of slope, this map unit generally is unsuited to cultivated crops.

Pasture and Hayland
Suitability: Poorly suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, a planned grazing system, and deferment of grazing during wet periods help to keep the pasture in good condition.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

- Overgrazing increases the rate of runoff and the hazard of erosion and reduces the vigor of the sod.

Woodland

Potential productivity: Dormont—moderately high on north-facing slopes and moderate on south-facing slopes; Latham—moderate

Management considerations:

- The seasonal high water table may restrict the rooting depth of some trees, resulting in a high seedling mortality rate and windthrow.
- The seasonal high water table restricts the use of equipment to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has an adequate snow cover.
- Erosion is a severe hazard on logging sites.
- The species that can tolerate the seasonal wetness should be selected for planting.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced.
- Building logging roads and trails on the contour and seeding the areas after they are no longer being used help to control erosion.
- Because the depth to bedrock restricts the root zone in areas of the Latham soil, trees may be uprooted during periods of strong wind or heavy snowfall.

Community Development

Suitability: Poorly suited

Management considerations:

- The depth to bedrock, the seasonal high water table, a hazard of slippage, and the slope are limitations affecting building site development in areas of the Latham soil.
- The high shrink-swell potential, low soil strength, and the slope are limitations on sites for local roads and streets in areas of the Latham soil.
- Installing foundation drains, sealing foundation walls, diverting water away from homesites, and backfilling with porous materials help to overcome the wetness affecting building site development.
- Constructing roads and streets along the contour on suitable subgrade material and installing a surface and subsurface drainage system help to overcome the limitations affecting local roads and streets.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: Dormont—4R on north-facing slopes and 3R on south-facing slopes; Latham—3R on north-facing slopes and 2R on south-facing slopes
Prime farmland: No
Hydric soil: No

GiD—Gilpin silt loam, 15 to 25 percent slopes

Setting

Landscape position: On summits and shoulders of ridges and benches; throughout the county

Composition

Gilpin and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface

Use and Management

Uses: Most areas of this Gilpin soil are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Erosion is a severe hazard in unprotected areas.
- Crop rotations that include grasses and legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate

Management considerations:
- Erosion on logging roads and skid trails is a major management concern.
- Because the depth to bedrock restricts the root zone, trees may be uprooted during periods of strong wind or heavy snowfall.
- Establishing logging roads and skid trails on the contour helps to control erosion.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced and by such harvest methods as selective cutting and strip cutting.

Community Development
Suitability: Poorly suited
Management considerations:
- The slope and the depth to bedrock are the main limitations affecting building site development.
- Erosion is a severe hazard on construction sites.
- Because this soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 3R
Prime farmland: No
Hydric soil: No

GiE—Gilpin silt loam, 25 to 35 percent slopes

Setting

Landscape position: On summits, shoulders of ridges, and benches; throughout the county

Composition

Gilpin and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface
- Soils that are less than 20 inches deep over bedrock

Use and Management

Uses: Most areas of this Gilpin soil are used as woodland. A few areas are used as hayland or pasture.

Cropland

Suitability: Poorly suited
Management considerations:
- Because of the slope, this soil is generally unsuited to cultivated crops.
- Erosion is a severe hazard in unprotected areas.
- Crop rotations that include grasses and legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.

Pasture and Hayland

Suitability: Unsuited to hay; suited to pasture
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.

Woodland

Potential productivity: Moderate
Management considerations:
- Erosion on logging roads and skid trails is a major management concern.
- Because the depth to bedrock restricts the root zone, trees may be uprooted during periods of strong wind or heavy snowfall.
- Establishing logging roads and skid trails on the contour helps to control erosion.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced and by such harvest methods as selective cutting and strip cutting.

Community Development
Suitability: Poorly suited
Management considerations:
- The slope and the depth to bedrock are the main limitations affecting building site development.
- Erosion is a severe hazard on construction sites.
- Because this soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 3R
Prime farmland: No
Hydric soil: No

GlF—Gilpin silt loam, 35 to 65 percent slopes, very stony

Setting

Landscape position: On the very steep side slopes of hills; in the northern part of the county

Composition

Gilpin and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None

Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Upshur soils
- Marrowbone soils
- Areas where stones cover 2 to 3 percent of the soil surface

Use and Management

Uses: Most areas of this Gilpin soil are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- The hazard of erosion is severe in unprotected areas.
- Because of the slope, this soil is unsuited to cultivated crops.

Pasture and Hayland
Suitability: Unsuited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the stoniness.

Woodland
Potential productivity: Moderately high
Management considerations:
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Erosion is a severe hazard on logging sites.
- Logging roads should be designed so that they conform to the topography.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- Because of the slope, this soil is unsuited to building site development unless extensive land shaping is completed.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

GmE—Gilpin-Matewan complex, 25 to 35 percent slopes, very stony

Setting

Landscape position: On summits, shoulders, and nose slopes of ridges; in areas underlain by interbedded sandstone and shale of the Conemaugh Formation
Note: The Gilpin and Matewan soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Matewan, and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—moderately decomposed, very dark brown leaf litter

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Gilpin—well drained; Matewan—well drained or somewhat excessively drained
Permeability: Gilpin—moderate; Matewan—moderately rapid or rapid
Available water capacity: Gilpin—moderate; Matewan—low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe

Slope class: Steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Shallow soils
- Wharton soils
- Soils that have more clay in the subsoil and are moderately well drained

Use and Management

Uses: Most areas of this map unit are used as woodland. Some areas have been cleared and are used as hayland or pasture.

Cropland
Suitability: Unsuited
Management considerations:
- The steepness of slope, a severe hazard of erosion, and the stones on the soil surface are the major management concerns.
- Crop rotations that include grasses and legumes or small grain, a system of conservation tillage, cover crops and green manure crops, and crop residue management help to prevent excessive erosion and to maintain fertility and tilth.
- Removal of surface stones reduces equipment wear and helps to increase crop yields.

Pasture and Hayland
Suitability: Unsuited to hay; suited to pasture
Management considerations:
- The surface stones interfere with the operation of harvesting equipment in areas of hayland.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate
Management considerations:
- Seedling mortality caused by droughtiness, plant competition, and the severe erosion hazard are management concerns.
- Because of the stoniness, machine planting is not practical in areas of this map unit.
- Mulching seedlings, when practical, and using north-facing slopes for plantations, where possible, reduce the seedling mortality rate.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding can help desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Because of stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.

Community Development
Suitability: Poorly suited
Management considerations:
- The steepness of slope, the depth to bedrock, and the severe hazard of erosion on construction sites are management concerns affecting community development.
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Buildings or dwellings should be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6s
Woodland ordination symbol: Gilpin—5R on north aspects and 4R on south aspects; Matewan—2F on north aspects and 3F on south aspects
Prime farmland: No
Hydric soil: No

GpC—Gilpin-Upshur complex, 8 to 15 percent slopes

Setting

Landscape position: On strongly sloping convex summits of ridges and benches; weathered from red clay and acid gray shales; throughout the northern part of the county
Note: The Gilpin and Upshur soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Upshur, and similar soils: 80 percent
Dissimilar soils: 20 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Upshur
Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 4 inches—brown silt loam

Subsoil:
4 to 8 inches—strong brown silt loam
8 to 24 inches—yellowish red silty clay
24 to 32 inches—dark reddish brown clay
32 to 41 inches—dusky red channery clay

Substratum:
41 to 47 inches—dusky red channery clay

Bedrock:
47 to 52 inches—weathered soft shale and siltstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow or very slow
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Moderate
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Gilpin soil and very strongly acid to slightly acid in the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Soils that are less than 20 inches deep over bedrock
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface

Use and Management

Uses: Most areas of this map unit are used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management considerations:
- The hazard of erosion is a management concern in unprotected areas of cropland.
- A system of conservation tillage, contour farming, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a hazard in unprotected areas and in areas where the sod has been removed by overgrazing.
- Proper stocking rates and short-duration grazing during the summer months help to control wind erosion and water erosion, maintain plant density and hardiness, and keep the pasture in good condition.
- Growing grasses and legumes for pasture or hay helps to control erosion.

Woodland
Potential productivity: Gilpin—moderately high; Upshur—moderate
Management considerations:
- Erosion on logging roads and skid trails is a management concern.
- Equipment use is restricted in areas of the Upshur soil during wet periods when the soil is soft and slippery.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Suited
Management considerations:
- The slope and the depth to bedrock are the main limitations affecting building site development in areas of the Gilpin soil.
- The high shrink-swell potential, the slope, and a hazard of slippage are the main limitations affecting building site development in areas of the Upshur soil.
- The slope is the main limitation on sites for local roads and streets in areas of the Gilpin soil.
- The slope, the high shrink-swell potential, and low strength are the main limitations on sites for local roads and streets in areas of the Upshur soil.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock in areas of the Gilpin soil.
- Adding extra reinforcement to footings, backfilling with porous material, and keeping water away from footings and foundations help to prevent the structural damage caused by shrinking and swelling in areas of the Upshur soil.
- Keeping surface water and subsurface water away from building sites and properly constructing retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.

Interpretive Groups

Land capability classification: 3e
Woodland ordination symbol: Gilpin—4A; Upshur—3C
Prime farmland: No
Hydric soil: No

GpD—Gilpin-Upshur complex, 15 to 25 percent slopes

Setting

Landscape position: On moderately steep convex summits of ridges, shoulders, and benches; weathered from red clay and acid gray shales; throughout the northern part of the county
Note: The Gilpin and Upshur soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Upshur, and similar soils: 75 percent
Dissimilar soils: 25 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Upshur
Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 4 inches—brown silt loam

Subsoil:
4 to 8 inches—strong brown silt loam
8 to 24 inches—yellowish red silty clay
24 to 32 inches—dark reddish brown clay
32 to 41 inches—dusky red channery clay

Substratum:
41 to 47 inches—dusky red channery clay

Bedrock:
47 to 52 inches—weathered soft shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Gilpin soil and very strongly acid to slightly acid throughout the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Soils that are less than 20 inches deep over bedrock

- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface

Use and Management

Uses: Most areas of this map unit are used as hayland or pasture. About one-third of the areas are used as woodland. A few are used as sites for urban development.

Cropland
Suitability: Poorly suited; better suited to hay and pasture
Management considerations:
- Erosion is a hazard in unprotected areas.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a hazard in unprotected areas and in areas where the sod has been removed by overgrazing.
- Proper stocking rates and short-duration grazing during the summer months help to control wind erosion and water erosion, maintain plant density and hardiness, and keep the pasture in good condition.
- Growing grasses and legumes for pasture or hay helps to control erosion.

Woodland
Potential productivity: Gilpin—moderately high; Upshur—moderate
Management considerations:
- Erosion on logging roads and skid trails is a management concern.
- Equipment use is restricted in areas of the Upshur soil during wet periods when the soil is soft and slippery.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Suited
Management considerations:
- The slope and the depth to bedrock are the main limitations affecting building site development in areas of the Gilpin soil.
- The high shrink-swell potential, the slope, and the hazard of slippage are the main limitations affecting building site development in areas of the Upshur soil.
- The slope is the main limitation on sites for local roads and streets in areas of the Gilpin soil.
- The slope, the high shrink-swell potential, and low strength are the main limitations on sites for local roads and streets in areas of the Upshur soil.
- Erosion is a hazard in areas cleared for construction.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock in areas of the Gilpin soil.
- Adding extra reinforcement to footings, backfilling with porous material, and keeping water away from footings and foundations help to prevent the structural damage caused by shrinking and swelling in areas of the Upshur soil.

- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: Gilpin—4R on both north and south aspects; Upshur—4R on north aspects and 3R on south aspects
Prime farmland: No
Hydric soil: No

GpE—Gilpin-Upshur complex, 25 to 35 percent slopes

Setting

Landscape position: On steep convex summits and shoulders of ridges and benches; weathered from red clay and acid gray shales; throughout the northern part of the county
Note: The Gilpin and Upshur soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Upshur, and similar soils: 80 percent
Dissimilar soils: 20 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Upshur
Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 4 inches—brown silt loam

Subsoil:
4 to 8 inches—strong brown silt loam
8 to 24 inches—yellowish red silty clay
24 to 32 inches—dark reddish brown clay

32 to 41 inches—dusky red channery clay

Substratum:
41 to 47 inches—dusky red channery clay

Bedrock:
47 to 52 inches—weathered soft shale and siltstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Severe
Slope class: Steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Gilpin soil and very strongly acid to slightly acid throughout the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 35 percent
- Soils that are less than 20 inches deep over bedrock
- Soils that are severely eroded
- Areas where stones cover as much as 3 percent of the soil surface

Use and Management

Uses: Most areas of this map unit are used as pasture or woodland. Some are used as hayland.

Cropland
Suitability: Unsuited
Management considerations:
- Erosion in unprotected areas and the steepness of slope are the main management concerns.
- Because of the slope, this map unit is unsuited to cultivated crops.
- Winter cover crops and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Unsuited to hay; suited to pasture
Management considerations:
- Erosion is a hazard in unprotected areas and in areas where the sod has been removed by overgrazing.
- Proper stocking rates and short-duration grazing during the summer months help to control wind erosion and water erosion, maintain plant density and hardiness, and keep the pasture in good condition.
- Growing grasses and legumes for pasture or hay helps to control erosion.

Woodland

Potential productivity: Gilpin—moderately high; Upshur—moderate

Management considerations:

- Erosion on logging roads and skid trails is a management concern.
- Equipment use is restricted in areas of the Upshur soil during wet periods when the soil is soft and slippery.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development

Suitability: Poorly suited (fig. 7)

Management considerations:

- The slope and the depth to bedrock are the main limitations affecting building site development in areas of the Gilpin soil.
- The high shrink-swell potential, the slope, and the hazard of slippage are the main limitations affecting building site development in areas of the Upshur soil.
- The slope is the main limitation on sites for local roads and streets in areas of the Gilpin soil.
- The slope, the high shrink-swell potential, and low strength are the main limitations on sites for local roads and streets in areas of the Upshur soil.
- Erosion is a hazard in areas cleared for construction.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock in areas of the Gilpin soil.

Figure 7.—Soil slippage in this area of Gilpin-Upshur complex, 25 to 35 percent slopes, resulted in severe damage to the road.

- Adding extra reinforcement to footings, backfilling with porous material, and keeping water away from footings and foundations help to prevent the structural damage caused by shrinking and swelling in areas of the Upshur soil.
- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: Gilpin—4R on both north and south aspects; Upshur—4R on north aspects and 3R on south aspects
Prime farmland: No
Hydric soil: No

GpF—Gilpin-Upshur complex, 35 to 65 percent slopes

Setting

Landscape position: On very steep linear and convex side slopes of hills; weathered from red clay and acid gray shales; throughout the northern part of the county
Note: The Gilpin and Upshur soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Upshur, and similar soils: 93 percent
Dissimilar soils: 7 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Upshur
Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 4 inches—brown silt loam

Subsoil:
4 to 8 inches—strong brown silt loam
8 to 24 inches—yellowish red silty clay
24 to 32 inches—dark reddish brown clay
32 to 41 inches—dusky red channery clay

Substratum:
41 to 47 inches—dusky red channery clay

Bedrock:
47 to 52 inches—weathered soft shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Gilpin—moderate; Upshur—slow
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Gilpin—low; Upshur—high
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Gilpin soil and very strongly acid to slightly acid throughout the Upshur soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: Gilpin—20 to 40 inches; Upshur—40 to 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 65 percent
- Areas of bedrock escarpment
- Soils that are less than 20 inches deep over bedrock
- Areas of disturbed soils
- Areas where stones cover as much as 3 percent of the soil surface
- Soils that have more than 35 percent rock fragments in the subsoil
- Soils that are severely eroded

Use and Management

Uses: Most areas of this map unit are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- Erosion in unprotected areas and the steepness of slope are the main management concerns.
- Because of the slope, this map unit is unsuited to cultivated crops.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- Erosion is a hazard in unprotected areas and in areas where the sod has been removed by overgrazing.
- Proper stocking rates and short-duration grazing during the summer months help to control wind erosion and water erosion, maintain plant density and hardiness, and keep the pasture in good condition.
- Growing grasses and legumes for pasture or hay helps to control erosion.

Woodland
Potential productivity: Gilpin—moderately high; Upshur—moderate

Management considerations:
- Erosion is a management concern on logging roads and skid trails.
- Equipment use is restricted in areas of the Upshur soil during wet periods when the soil is soft and slippery.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Poorly suited
Management considerations:
- The slope and the depth to bedrock are the main limitations affecting building site development in areas of the Gilpin soil.
- The high shrink-swell potential, the slope, and the hazard of slippage are the main limitations affecting building site development in areas of the Upshur soil.
- The slope is the main limitation on sites for local roads and streets in areas of the Gilpin soil.
- The slope, the high shrink-swell potential, and low strength are the main limitations on sites for local roads and streets in areas of the Upshur soil.
- Erosion is a hazard in areas cleared for construction.
- Land shaping and grading can help to overcome the slope on building sites.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the bedrock in areas of the Gilpin soil.
- Adding extra reinforcement to footings, backfilling with porous material, and keeping water away from footings and foundations help to prevent the structural damage caused by shrinking and swelling in areas of the Upshur soil.
- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Establishing a plant cover during or soon after construction helps to prevent excessive erosion in areas cleared for construction.

Interpretive Groups

Land capability classification: 7e
Woodland ordination symbol: Gilpin—4R on both north and south aspects; Upshur—4R on north aspects and 3R on south aspects
Prime farmland: No
Hydric soil: No

GrE—Gilpin-Wharton complex, 15 to 35 percent slopes

Setting

Landscape position: Moderately steep and steep convex summits of ridges; throughout the southern part of the county
Note: The Gilpin and Wharton soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Gilpin, Wharton, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Wharton
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed leaf litter

Surface layer:
3 to 5 inches—brown silt loam

Subsoil:
5 to 10 inches—yellowish brown silt loam
10 to 22 inches—yellowish brown silty clay loam
22 to 30 inches—gray and yellowish brown, mottled silty clay loam
30 to 37 inches—gray and light yellowish brown silty clay loam

Substratum:
37 to 49 inches—light gray and brownish yellow silt loam

Bedrock:
49 to 55 inches—soft interbedded gray shale and siltstone

Soil Properties and Qualities

Drainage class: Gilpin—well drained; Wharton—moderately well drained
Permeability: Gilpin—moderate; Wharton—slow or very slow
Available water capacity: Gilpin—moderate; Wharton—moderate or high
Depth to a seasonal high water table: Gilpin—more than 72 inches; Wharton—18 to 36 inches
Flooding: None
Shrink-swell potential: Gilpin—low; Wharton—moderate
Hazard of erosion: Severe
Slope class: Moderately steep or steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Gilpin soil and extremely acid to strongly acid throughout the Wharton soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: Gilpin—20 to 40 inches; Wharton—40 to 60 inches

Inclusions

Limiting inclusions:
- Shallow soils
- Latham soils
- Matewan soils

Use and Management

Uses: Most areas of this map unit are used as woodland. Some areas have been cleared and are used as hayland or pasture.

Cropland
Suitability: Unsuited
Management considerations:
- The steepness of slope and the severe hazard of erosion are the main management concerns.
- Crop rotations that include grasses and legumes or small grain, a system of conservation tillage, cover crops and green manure crops, and crop residue management help to prevent excessive erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Unsuited to hay; suited to pasture
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Grazing when the soil is too wet, particularly in areas of the Wharton soil, causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Logging should be avoided during wet periods because it can result in excessive rutting in areas of the Wharton soil, which becomes very soft when it is wet.
- Erosion is a severe hazard affecting logging roads and skid trails.
- The severe hazard of erosion in areas of this map unit and the wetness of the Wharton soil restrict the use of equipment to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has an adequate snow cover.
- Constructing roads and skid trails on the contour helps to control erosion and reduce sedimentation.

Community Development
Suitability: Poorly suited
Management considerations:
- The steepness of slope, the depth to bedrock in areas of the Gilpin soil, the wetness of the Wharton soil, and the hazard of erosion on construction sites are the main management concerns.
- Because the Wharton soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings should be designed so that they conform to the natural slope of the land.
- Land shaping is necessary in some areas.
- Building on the bedrock and landscaping with additional fill material may be preferable to excavating the bedrock in areas of the Gilpin soil.

Interpretive Groups

Land capability classification: 6e

Woodland ordination symbol: Gilpin—5R on north aspects and 4R on south aspects; Wharton—4R on north and south aspects
Prime farmland: No
Hydric soil: No

Gs—Grigsby fine sandy loam, frequently flooded

Setting

Landscape position: On low flood plains along the major streams; throughout the county

Composition

Grigsby and similar soils: 86 percent
Dissimilar inclusions: 14 percent

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown fine sandy loam

Subsoil:
10 to 45 inches—dark yellowish brown fine sandy loam and sandy loam

Substratum:
45 to 49 inches—dark yellowish brown loamy sand
49 to 65 inches—brownish yellow, strong brown, and very pale brown gravelly loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: 42 to 72 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, slightly acid or neutral in the solum and moderately acid to neutral in the C horizon
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Middlebury soils
- Skidmore soils

Use and Management

Uses: Most areas of this Grigsby soil are used as hayland or woodland. A small acreage is used for corn.

Cropland
Suitability: Suited
Management considerations:
- Droughtiness during dry periods is a management concern.
- The flooding frequently delays fieldwork or damages crops.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Drought-tolerant crops should be selected for planting, or the soil should be irrigated.
- Protecting the soil against flooding and maintaining a drainage system minimize crop damage.

Pasture and Hayland
Suitability: Suited
Management considerations:
- The droughtiness limits forage production during the summer months.
- Unrestricted access to streams by livestock results in streambank erosion and water pollution.
- The flooding frequently deposits debris on the grassland.
- Drought-tolerant crops should be selected for planting, or the soil should be irrigated.
- Access to streams by livestock should be limited to protected crossings.
- The hay and pasture plants that can withstand periodic inundation by floodwater should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition and the seedling mortality rate are the main management concerns.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding can help desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.
- Planting nursery stock that is larger than is typical or planting containerized seedlings increases the seedling survival rate.

Community Development
Suitability: Poorly suited
Management considerations:
- The frequent flooding is a management concern.
- The poor filtering capacity of this soil can result in the pollution of ground water.
- An alternative site that is less prone to flooding should be selected.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 7A
Prime farmland: No
Hydric soil: No

Gt—Grigsby loam, occasionally flooded

Setting

Landscape position: On low flood plains along perennial streams; throughout the county

Composition

Grigsby and similar soils: 86 percent
Dissimilar inclusions: 14 percent

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown fine sandy loam

Subsoil:
10 to 45 inches—dark yellowish brown fine sandy loam and sandy loam

Substratum:
45 to 49 inches—dark yellowish brown loamy sand
49 to 65 inches—brownish yellow, strong brown, and very pale brown gravelly loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: 42 to 72 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, slightly acid or neutral in the solum and moderately acid to neutral in the C horizon
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Middlebury soils
- Skidmore soils

Use and Management

Uses: This Grigsby soil is used mainly as hayland or woodland. A small acreage is used for corn.

Cropland
Suitability: Suited
Management considerations:
- Droughtiness during dry periods is a management concern.
- The flooding occasionally delays fieldwork or damages crops.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Drought-tolerant crops should be selected for planting, or the soil should be irrigated.
- Protecting the soil against flooding and maintaining a drainage system minimize crop damage.

Pasture and Hayland
Suitability: Suited
Management considerations:
- The droughtiness limits forage production during the summer months.
- Unrestricted access to streams by livestock results in streambank erosion and water pollution.
- The flooding occasionally deposits debris on the grassland.
- Drought-tolerant crops should be selected for planting, or the soil should be irrigated.
- Access to streams by livestock should be limited to protected crossings.
- The hay and pasture plants that can withstand periodic inundation by floodwater should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition and the seedling mortality rate are the main management concerns.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding can help desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.
- Planting nursery stock that is larger than is typical or planting containerized seedlings increases the seedling survival rate.

Community Development
Suitability: Poorly suited
Management considerations:
- The occasional flooding is a management concern.
- The poor filtering capacity of this soil can result in the pollution of ground water.
- An alternative site that is less prone to flooding should be selected.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 7A
Prime farmland: Yes
Hydric soil: No

Gu—Guyan silt loam, rarely flooded

Setting

Landscape position: On high flood plains and low terraces along the major rivers and streams; throughout the northern part of the county

Composition

Guyan and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 10 inches—yellowish brown and brown, mottled silt loam
10 to 16 inches—yellowish brown, mottled silt loam
16 to 35 inches—light gray and brownish yellow silty clay loam

35 to 50 inches—light gray, mottled silty clay loam

Substratum:
50 to 65 inches—light gray, mottled silty clay loam

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 6 to 18 inches
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to slightly acid in the A and BA horizons and very strongly acid or strongly acid in the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Holly soils
- Soils that are less permeable below the surface layer
- Soils that are occasionally flooded

Use and Management

Uses: Most areas of this Guyan soil are used as hayland.

Cropland
Suitability: Suited to cultivated crops
Management considerations:
- The seasonal wetness may delay tillage and planting in the spring.
- The flooding, which occurs rarely and lasts for a very brief duration, may delay fieldwork or damage crops.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed and flooding is controlled.

Pasture and Hayland
Suitability: Well suited to hay and pasture plants that can tolerate wetness
Management considerations:
- Grazing early in spring when the soil is too wet and soft causes surface compaction and poor tilth and damages the sod.
- Flooding deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Grazing should be deferred in the spring until the soil is firm.
- The hay and pasture plants that can tolerate the seasonal wetness and the periodic inundation by floodwater should be selected for planting.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high for trees tolerant to wetness

Management considerations:
- Logging should be avoided during wet periods because it can result in excessive rutting.
- Establishment of tree seedlings is poor because of the plant competition from undesirable vegetation.
- Limiting operation of logging equipment to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has adequate snow cover, minimizes the formation of ruts and helps to control erosion.
- Plant competition can be controlled by creating areas of bare soil during site preparation or limiting the size of openings made in the canopy.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal wetness and the rare flooding in some areas limit excavation and trafficability and may delay construction activities in the winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Cutbanks may seep during wet periods.
- Installing a drainage system around structures with basements and crawl spaces helps to overcome the wetness.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing the roads on raised fill material and installing a drainage system may help to overcome the wetness.

Interpretive Groups

Land capability classification: 3w
Woodland ordination symbol: 6w
Prime farmland: No
Hydric soil: No

HMF—Highsplint-Matewan-Cloverlick association, very steep, extremely stony

Setting

Landscape position: Highsplint—typically on the middle and lower side slopes of hills, footslopes, and benches and in south-facing coves; Matewan—on convex and linear side slopes of hills, shoulders, nose slopes, and summits of some ridges; Cloverlick—typically in north-facing coves and on the middle and lower, north-facing side slopes of hills and footslopes; in areas dominated by sandstone bedrock of the Kanawha and Allegheny Formations

Composition

Highsplint, Matewan, Cloverlick, and similar soils: 91 percent
Dissimilar inclusions: 9 percent

Typical Profile

Highsplint
Organic layer:
0 to 2 inches—slightly decomposed forest litter

Surface layer:
2 to 5 inches—brown loam

Subsoil:
5 to 11 inches—yellowish brown channery loam
11 to 50 inches—yellowish brown very channery loam

Substratum:
50 to 65 inches—yellowish brown extremely channery fine sandy loam

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—moderately decomposed, very dark brown leaf litter

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard sandstone

Cloverlick
Organic layer:
0 to 2 inches—slightly decomposed leaf litter

Surface layer:
2 to 9 inches—very dark grayish brown loam

Subsoil:
9 to 13 inches—dark yellowish brown and dark brown channery loam
13 to 29 inches—yellowish brown very channery loam
29 to 45 inches—brown very channery loam
45 to 50 inches—brown very channery silt loam

Substratum:
50 to 65 inches—yellowish brown extremely channery loam

Soil Properties and Qualities

Drainage class: Highsplint and Cloverlick—well drained; Matewan—well drained or somewhat excessively drained
Permeability: Highsplint—moderate or moderately rapid; Matewan—moderately rapid or rapid; Cloverlick—moderate
Available water capacity: Highsplint—moderate; Matewan—low; Cloverlick—high
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 5 to 10 percent of the surface covered by stones
Rockiness: None
Natural fertility: Highsplint and Matewan—medium; Cloverlick—high
Reaction: In unlimed areas, very strongly acid to slightly acid in the surface layer and very strongly acid to moderately acid in the subsoil and substratum of the

Highsplint and Cloverlick soils and extremely acid to moderately acid throughout the Matewan soil

Organic matter content in the surface layer: Highsplint and Matewan—moderate; Cloverlick—very high

Surface runoff: Very high

Depth to bedrock: Highsplint and Cloverlick—more than 60 inches; Matewan—20 to 40 inches

Inclusions

Limiting inclusions:

- Shallow soils
- Soils with a fragipan
- Areas of bedrock escarpment
- Soils with slopes of more than 65 percent
- Soils that have 1 to 3 percent of their surface covered by boulders

Use and Management

Uses: Most areas of this map unit are used as woodland.

Cropland

Suitability: Unsuited

Management considerations:

- The steepness of slope, the severe hazard of erosion, and an equipment limitation are the main management concerns.
- This map unit should not be used for cultivated crops.

Pasture and Hayland

Suitability: Unsuited to hay; poorly suited to pasture

Management considerations:

- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

Woodland

Potential productivity: Moderate to high

Management considerations:

- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Landings should be established in the less sloping areas along the contour.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.

Community Development

Suitability: Unsuited

Management considerations:

- The steepness of slope, the severe hazard of erosion on construction sites, and a severe hazard of slippage are the main management concerns.
- This map unit is generally unsuited to building site development because of the steepness of slope.
- Building roads and streets on the contour helps to overcome the slope on sites for local roads and streets.

- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: Highsplint—8R on north aspects and 6R on south aspects; Matewan—3R; Cloverlick—5R on north aspects and 4R on south aspects
Prime farmland: No
Hydric soil: No

HuE—Highsplint-Urban land complex, 15 to 35 percent slopes, very stony

Setting

Landscape position: On footslopes, colluvial fans, and the lower side slopes of hills; in the southern part of the county
Note: The Highsplint soil and Urban land occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Highsplint and similar soils and Urban land: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Highsplint
Organic layer:
0 to 2 inches—slightly decomposed forest litter

Surface layer:
2 to 5 inches—brown loam

Subsoil:
5 to 11 inches—yellowish brown channery loam
11 to 50 inches—yellowish brown very channery loam

Substratum:
50 to 65 inches—yellowish brown extremely channery fine sandy loam

Urban land
The Urban land consists of areas where the surface is covered by works or structures, such as streets, houses, concrete, or other impervious material.

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep or steep
Stoniness: 1 to 3 percent of the surface covered by stones

Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to moderately acid in the A horizon and very strongly acid or strongly acid in the B and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are 20 to 40 inches deep over bedrock
- Soils with slopes of more than 35 percent
- Soils that are severely eroded
- Areas of disturbed soils

Use and Management

Uses: Most of this map unit is used for single family homesites and associated urban areas. The undisturbed areas of the Highsplint soil are used for yards or gardens.

Cropland
Suitability: Unsuited
Management considerations:
- The steepness of slope and the severe hazard of erosion are the main management concerns.
- The operation of cultivation equipment is difficult because of the stones on the soil surface.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- Erosion is a severe hazard if the sod if removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Proper stocking rates, controlled grazing, and restricted use during dry periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Erosion is a severe hazard affecting logging roads and skid trails.
- Designing logging roads and skid trails so that they conform to the topography helps to control erosion and to ensure the safe operation of logging equipment.

Community Development
Suitability: Poorly suited
Management considerations:
- The steepness of slope and the severe hazard of erosion on building sites and on sites used for roads are management concerns.
- Extensive land shaping is needed on building sites because of the steepness of slope.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

- Seeding and mulching roadbanks after construction can help to prevent excessive erosion.

Interpretive Groups

Land capability classification: Highsplint—6s; Urban land—8s
Woodland ordination symbol: 5R on north aspects and 4R on south aspects
Prime farmland: No
Hydric soil: No

Hy—Holly loam, occasionally flooded

Setting

Landscape position: On low flood plains along small streams; throughout the northern and central parts of the county

Composition

Holly and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—gray loam

Subsoil:
6 to 35 inches—gray, mottled silt loam

Substratum:
35 to 49 inches—gray, mottled silt loam
49 to 65 inches—gray and yellowish brown loam

Soil Properties and Qualities

Drainage class: Very poorly drained or poorly drained
Permeability: Moderate or moderately slow
Available water capacity: High
Seasonal high water table: Within a depth of 12 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to neutral in the solum and moderately acid to slightly alkaline in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are subject to frequent flooding
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Holly soil are used for hay or pasture. Most of the trees in areas of this map unit are in isolated woodlots that are generally too small for commercial wood production.

Cropland
Suitability: Poorly suited
Management considerations:
- The flooding or the very brief periods of ponding may damage crops or delay fieldwork.
- The seasonal wetness delays tillage and planting in the spring.
- If this soil is cultivated, applying a system of conservation tillage, delaying tillage until the soil is reasonably dry, and incorporating crop residue into the soil help to maintain fertility and tilth.

Pasture and Hayland
Suitability: Poorly suited
Management considerations:
- The flooding deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Improvement of the stream channel can reduce overflow.
- Access to streams by livestock should be limited to protected crossings.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- This soil is soft when wet and, as a result, is susceptible to excessive rutting if logging equipment is used during wet periods.
- Undesirable plants hinder adequate natural and artificial reforestation in areas where intensive site preparation and maintenance are not done.
- Because of the rutting, equipment should only be used during the dry summer months or during periods in winter when the soil is frozen or has adequate snow cover.
- If trees are planted, site preparation by mechanical or chemical means helps to control competing vegetation.
- Subsequent control of undesirable vegetation may be needed.

Community Development
Suitability: Unsuited
Management considerations:
- The seasonal wetness limits excavation and trafficability and delays construction activities in winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the seasonal high water table.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 3w

Woodland ordination symbol: 5W
Prime farmland: No
Hydric soil: Yes

KaA—Kanawha silt loam, 0 to 3 percent slopes, protected

Setting

Landscape position: On high flood plains and low terraces along the major streams and rivers; throughout the county
Note: Protected from flooding

Composition

Kanawha and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsoil:
6 to 10 inches—dark yellowish brown silt loam
10 to 66 inches—yellowish brown silt loam

Substratum:
66 to 72 inches—yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, strongly acid or moderately acid in the A and BA horizons and in the upper part of the Bt horizon and moderately acid to neutral in the lower part of the Bt horizon and in the BC and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Monongahela soils
- Soils with slopes of more than 3 percent
- Soils that have more clay in the subsoil and a seasonal high water table at a depth of 30 to 40 inches
- Soils that are subject to rare flooding

Use and Management

Uses: Most areas of this Kanawha soil are used for cultivated crops, hay, or pasture. Some areas are used as woodland.

Cropland
Suitability: Suited
Management considerations:
- In some areas the soil is subject to streambank erosion.
- Leaving a border of trees along streams helps to prevent streambank erosion.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Establishing and maintaining healthy sod and preventing overgrazing are major management concerns in pastured areas.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Applying selective cutting during harvest helps to ensure that woodland consists of the preferred species.

Community Development
Suitability: Suited
Management considerations:
- Shallow excavations can cave in because some cutbanks are not stable.
- Low strength is a management concern on sites for local roads and streets.
- The trench walls of shallow excavations should be reinforced.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 1
Woodland ordination symbol: 4A
Prime farmland: Yes
Hydric soil: No

KaB—Kanawha silt loam, 3 to 8 percent slopes, protected

Setting

Landscape position: On high flood plains and low terraces along the major streams and rivers; throughout the county
Note: Protected from flooding

Composition

Kanawha and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsoil:
6 to 10 inches—dark yellowish brown silt loam
10 to 66 inches—yellowish brown silt loam

Substratum:
66 to 72 inches—yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, strongly acid or moderately acid in the A and BA horizons and in the upper part of the Bt horizon and moderately acid to neutral in the lower part of the Bt horizon and in the BC and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Monongahela soils
- Soils with slopes of more than 8 percent
- Soils that have more clay in the subsoil and a seasonal high water table at a depth of 30 to 40 inches
- Soils that are subject to rare flooding

Use and Management

Uses: Most areas of this Kanawha soil are used for cultivated crops, hay, or pasture. Some areas are used as woodland.

Cropland
Suitability: Suited
Management considerations:
- Some areas are subject to streambank erosion.
- Leaving a border of trees along streams helps to prevent streambank erosion.
- Most areas can be protected against flooding by dikes or water-retention structures.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major management concerns in pastured areas.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- Applying selective cutting during harvest helps to ensure that woodland consists of the preferred species.

Community Development
Suitability: Suited
Management considerations:
- Shallow excavations can cave in because some cutbanks are not stable.
- Low strength is a management concern on sites for local roads and streets.
- The trench walls of shallow excavations should be reinforced.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength.

Interpretive Groups

Land capability classification: 2e
Woodland ordination symbol: 4A
Prime farmland: Yes
Hydric soil: No

KfB—Kaymine and Fiveblock soils, 0 to 8 percent slopes, extremely stony

Setting

Landscape position: On benches; in areas formerly surface-mined for coal

Composition

Kaymine, Fiveblock, and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Kaymine
Surface layer:
0 to 3 inches—grayish brown channery loam

Substratum:
3 to 23 inches—gray, mottled very channery silt loam
23 to 41 inches—gray, mottled extremely channery loam
41 to 65 inches—gray, mottled extremely channery loam

Fiveblock
Surface layer:
0 to 4 inches—yellowish brown channery loam

Substratum:
4 to 25 inches—yellowish brown very channery sandy loam
25 to 50 inches—yellowish brown extremely flaggy sandy loam
50 to 65 inches—yellowish brown very flaggy sandy loam

Soil Properties and Qualities

Drainage class: Kaymine—well drained; Fiveblock—somewhat excessively drained
Permeability: Moderate or moderately rapid
Available water capacity: Kaymine—low to high; Fiveblock—very low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level or gently sloping
Stoniness: 3 to 5 percent of the surface covered by stones
Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, moderately acid to moderately alkaline throughout the Kaymine soil and moderately acid to moderately alkaline in the A horizon and moderately acid to slightly alkaline in the substratum of the Fiveblock soil
Organic matter content in the surface layer: Kaymine—very low; Fiveblock—low
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Moderately deep soils along the edge of benches
- Soils that are more acid
- Small, wet depressions
- Soils with slopes of more than 8 percent

Use and Management

Uses: This map unit is used as pasture or woodland.

Cropland
Suitability: Unsuited
Management considerations:
- In most areas, rock fragments in the surface layer and stones at the surface interfere with tillage and planting.

Pasture and Hayland
Suitability: Poorly suited
Management considerations:
- The surface stones and short escarpments in this map unit may interfere with the use of harvesting equipment.
- If hay is harvested, a suitable cutting height is needed to allow machinery to clear stones, conserve soil moisture, and reduce stress on plants.
- Proper stocking rates, controlled grazing, and restricted use during dry periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- The droughtiness of these soils can result in a high seedling mortality rate in tree plantations.
- Large stones at the surface may interfere with tree harvesting equipment in some areas of this map unit.
- Seedlings should be mulched where practical.

- Planting when the soil is moist can reduce the seedling mortality rate.
- Because of stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.

Community Development
Suitability: Varies
Management considerations:
- The stones and boulders on the surface and the potential for differential settling are the main management concerns.
- Onsite investigation and testing are needed to determine the potential for community development.

Interpretive Groups

Land capability classification: 6s
Woodland ordination symbol: 4X
Prime farmland: No
Hydric soil: No

KfF—Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony

Setting

Landscape position: On very steep outslopes and side slopes of hills; in revegetated areas formerly surface-mined for coal (fig. 8)

Composition

Kaymine, Fiveblock, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Figure 8.—Areas of Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony, are mainly revegetated with grass-legume mixtures, autumn olive shrubs, and black walnut trees.

Typical Profile

Kaymine
Surface layer:
0 to 3 inches—grayish brown channery loam

Substratum:
3 to 23 inches—gray, mottled very channery silt loam
23 to 41 inches—gray, mottled extremely channery loam
41 to 65 inches—gray, mottled extremely channery loam

Fiveblock
Surface layer:
0 to 4 inches—yellowish brown channery loam

Substratum:
4 to 25 inches—yellowish brown very channery sandy loam
25 to 50 inches—yellowish brown extremely flaggy sandy loam
50 to 65 inches—yellowish brown very flaggy sandy loam

Soil Properties and Qualities

Drainage class: Kaymine—well drained; Fiveblock—somewhat excessively drained
Permeability: Moderate or moderately rapid
Available water capacity: Kaymine—low to high; Fiveblock—very low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 3 to 5 percent of the surface covered by stones
Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, moderately acid to moderately alkaline throughout the Kaymine soil and moderately acid to slightly alkaline in the Fiveblock soil
Organic matter content in the surface layer: Kaymine—very low; Fiveblock—low
Surface runoff: Very high
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are more acid throughout

Use and Management

Uses: This map unit is used as grassland with autumn olive shrubs in the open areas or as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- In most areas, rock fragments in the surface layer and stones at the surface interfere with tillage and planting.
- Because of the steepness of slope, this map unit is generally unsuited to cultivated crops.
- The severe hazard of erosion is a management concern.

Pasture and Hayland
Suitability: Unsuited
Management considerations:
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major management concerns in pastured areas.
- The severe hazard of erosion is a management concern.

Woodland
Potential productivity: Moderately high
Management considerations:
- The droughtiness of these soils can result in a high seedling mortality rate in tree plantations.
- Large stones at the surface may interfere with tree harvesting equipment in some areas of this map unit.
- The slope is a management concern.
- Erosion is a severe hazard affecting logging roads and skid trails.
- Seedlings should be mulched where practical.
- Planting when the soil is moist can reduce the seedling mortality rate.
- Because of stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Constructing roads and skid trails on the contour helps to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- The stones and boulders on the surface, the potential for differential settling, and the steepness of slope are the main management concerns.
- Onsite investigation and testing are necessary to determine the limitations and potential for most urban uses.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

KmF—Kaymine-Cedarcreek-Matewan complex, very steep, extremely stony

Setting

Landscape position: Kaymine and Cedarcreek—on very steep outslopes in areas that have been surface-mined for coal; Matewan—on very steep side slopes of hills or on shoulders of ridges in areas that have not been mined
Note: The Kaymine, Cedarcreek, and Matewan soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Kaymine, Cedarcreek, Matewan, and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Kaymine
Surface layer:
0 to 3 inches—grayish brown channery loam

Substratum:
3 to 23 inches—gray, mottled very channery silt loam
23 to 41 inches—gray, mottled extremely channery loam
41 to 65 inches—gray, mottled extremely channery loam

Cedarcreek
Surface layer:
0 to 3 inches—brown very channery loam

Substratum:
3 to 65 inches—mixed yellowish brown and brownish yellow very channery loam

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—very dark brown, moderately decomposed organic material

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Kaymine and Cedarcreek—well drained; Matewan—somewhat excessively drained or well drained
Permeability: Moderate or moderately rapid
Available water capacity: Kaymine and Cedarcreek—low to high; Matewan—very low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 3 to 5 percent of the surface covered by stones
Rockiness: None
Natural fertility: Kaymine—low; Cedarcreek—low or medium; Matewan—medium
Reaction: In unlimed areas, moderately acid to moderately alkaline throughout the Kaymine soil, extremely acid to strongly acid throughout the Cedarcreek soil, and very strongly acid to moderately acid throughout the Matewan soil
Organic matter content in the surface layer: Kaymine and Cedarcreek—very low; Matewan—moderate
Surface runoff: Kaymine and Cedarcreek—very low on the benches and very high on the outslopes; Matewan—very high

Depth to bedrock: Kaymine and Cedarcreek—more than 60 inches; Matewan—20 to 40 inches

Inclusions

Limiting inclusions:
- Areas where stones and boulders cover more than 15 percent of the soil surface
- Soils that are less than 20 inches deep over bedrock
- Areas of rock outcrop

Use and Management

Uses: This map unit is used as grassland with autumn olive shrubs in the open areas or as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- In most areas, the rock fragments in the surface layer and stones at the surface interfere with tillage and planting.
- Because of the steepness of slope, this map unit is generally unsuited to cultivated crops.
- Erosion is a severe hazard in areas used for crops.

Pasture and Hayland
Suitability: Unsuited
Management considerations:
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major management concerns in pastured areas.
- Erosion is a severe hazard in areas used for pasture or hay.

Woodland
Potential productivity: Moderately high
Management considerations:
- The droughtiness of these soils can result in a high seedling mortality rate in tree plantations.
- Large stones at the surface may interfere with tree harvesting equipment in some areas of this map unit.
- The slope is a management concern.
- Erosion is a severe hazard affecting logging roads and skid trails.
- Seedlings should be mulched where practical.
- Planting when the soil is moist can reduce the seedling mortality rate.
- Because of stones at the surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Constructing roads and skid trails on the contour helps to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- The stones and boulders on the surface, the potential for differential settling, and the steepness of slope are management concerns.
- Onsite investigation and testing are necessary to determine the limitations and potential for most urban uses.

Interpretive Groups

Land capability classification: 7s

Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

LgC—Latham-Gilpin complex, 8 to 15 percent slopes

Setting

Landscape position: On the upper side slopes of hills and the narrow summits and shoulders of ridges; in areas of the Conemaugh Formation; throughout the county
Note: The Latham and Gilpin soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Latham, Gilpin, and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Latham
Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 7 inches—yellowish brown channery silt loam
7 to 16 inches—yellowish brown channery silty clay loam
16 to 23 inches—light yellowish brown, mottled channery silty clay
23 to 29 inches—yellowish brown, mottled channery silty clay

Substratum:
29 to 34 inches—yellowish brown, mottled channery silty clay

Bedrock:
34 to 39 inches—soft interbedded acid gray shale and siltstone

Gilpin
Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Soil Properties and Qualities

Drainage class: Latham—moderately well drained; Gilpin—well drained
Permeability: Latham—very slow; Gilpin—moderate
Available water capacity: Latham—low; Gilpin—moderate
Depth to a seasonal high water table: Latham—18 to 36 inches; Gilpin—more than 72 inches
Flooding: None

Shrink-swell potential: Latham—high; Gilpin—low
Hazard of erosion: Moderate
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to slightly acid in the A horizon and extremely acid or very strongly acid in the subsoil and substratum of the Latham soil and extremely acid to strongly acid throughout the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Soils that are deep and somewhat poorly drained

Use and Management

Uses: Most areas of this map unit are used for cultivated crops, hay, or pasture.

Cropland
Suitability: Suited
Management considerations:
- The hazard of erosion is moderate in unprotected areas.
- The seasonal high water table restricts the rooting depth of some plants in areas of the Latham soil.
- A crop rotation that includes grasses and legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Overgrazing increases the rate of runoff and the hazard of erosion and reduces the vigor of the sod.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate
Management considerations:
- The seasonal high water table may restrict the rooting depth of some trees in areas of the Latham soil, resulting in a high seedling mortality rate and windthrow.
- Because the depth to bedrock restricts the root zone in areas of the Latham soil, trees may be uprooted during periods of strong wind or heavy snowfall.
- The seasonal high water table restricts the use of equipment in areas of the Latham soil to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has an adequate snow cover.
- The species that can tolerate the seasonal wetness should be selected for planting.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced.

Community Development
Suitability: Poorly suited
Management considerations:
- The depth to bedrock, the seasonal high water table, and the slow permeability are limitations on sites for septic tank absorption fields in areas of the Latham soil, while the depth to bedrock is a limitation in areas of the Gilpin soil.
- The seasonal high water table is a limitation on building sites in areas of the Latham soil, while the slope is a limitation in areas of the Gilpin soil.
- The high shrink-swell potential and low soil strength are limitations affecting local roads and streets in areas of the Latham soil, while the slope is a limitation in areas of the Gilpin soil.
- Installing specially designed systems approved by the local health department helps to overcome the limitations affecting septic tank absorption fields.
- Installing foundation drains, sealing foundation walls, diverting water away from homesites, and backfilling with porous materials help to prevent the damage caused by wetness on sites for dwellings with basements.
- Constructing roads and streets along the contour and on suitable subgrade material and installing a surface and subsurface drainage system help to overcome the limitations on sites for local roads and streets.

Interpretive Groups

Land capability classification: 3e
Woodland ordination symbol: 3C
Prime farmland: No
Hydric soil: No

LgD—Latham-Gilpin complex, 15 to 25 percent slopes

Setting

Landscape position: On the upper side slopes of hills and on narrow summits and shoulders of ridges; in areas of the Conemaugh Formation; throughout the county
Note: The Latham and Gilpin soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Latham, Gilpin, and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Latham
Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 7 inches—yellowish brown channery silt loam
7 to 16 inches—yellowish brown channery silty clay loam
16 to 23 inches—light yellowish brown, mottled channery silty clay
23 to 29 inches—yellowish brown, mottled channery silty clay

Substratum:
29 to 34 inches—yellowish brown, mottled channery silty clay

Bedrock:
34 to 39 inches—soft interbedded acid gray shale and siltstone

Gilpin

Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed, very dark gray leaf litter

Surface layer:
3 to 6 inches—very dark grayish brown silt loam

Subsoil:
6 to 16 inches—yellowish brown channery silt loam
16 to 28 inches—brown channery silty clay loam

Bedrock:
28 to 33 inches—interbedded soft shale, siltstone, and fine grained sandstone
33 inches—hard, fine grained sandstone

Soil Properties and Qualities

Drainage class: Latham—moderately well drained; Gilpin—well drained
Permeability: Latham—very slow; Gilpin—moderate
Available water capacity: Latham—low; Gilpin—moderate
Depth to a seasonal high water table: Latham—18 to 36 inches; Gilpin—more than 72 inches
Flooding: None
Shrink-swell potential: Latham—high; Gilpin—low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to slightly acid in the A horizon and extremely acid or very strongly acid in the subsoil and substratum of the Latham soil and extremely acid to strongly acid throughout the Gilpin soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Soils that are deep and somewhat poorly drained

Use and Management

Uses: Most areas of this map unit are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- The hazard of erosion is severe in unprotected areas.
- The seasonal high water table restricts the rooting depth of some plants in areas of the Latham soil.
- A crop rotation that includes grasses and legumes, a conservation tillage system, grassed waterways, and cover crops help to control water erosion.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Overgrazing increases the rate of runoff and the hazard of erosion and reduces the vigor of the sod.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.
- Proper stocking rates, a planned grazing system, and deferment of grazing in spring until the Latham soil is reasonably firm help to keep the pasture in good condition.

Woodland
Potential productivity: Latham—moderate; Gilpin—moderately high
Management considerations:
- The seasonal high water table may restrict the rooting depth of some trees in areas of the Latham soil, resulting in a high seedling mortality rate and windthrow.
- Because the depth to bedrock restricts the root zone in areas of the Latham soil, trees may be uprooted during periods of strong wind or heavy snowfall.
- The seasonal high water table restricts the use of equipment in areas of the Latham soil to midsummer, when the soil is dry, or midwinter, when the soil is frozen or has an adequate snow cover.
- Erosion is a severe hazard on logging sites.
- The species that can tolerate the seasonal wetness should be selected for planting.
- Windthrow can be minimized by applying harvest methods that do not leave the remaining trees widely spaced.
- Building logging roads and trails on the contour and seeding the areas after they are no longer being used help to control erosion.

Community Development
Suitability: Poorly suited
Management considerations:
- The depth to bedrock, the seasonal high water table, the slow permeability, and the slope are limitations affecting septic tank absorption fields in areas of the Latham soil, while the depth to bedrock and slope are limitations in areas of the Gilpin soil.
- The seasonal high water table, the hazard of slippage, and the slope are limitations on sites for dwellings with basements in areas of the Latham soil, while the slope is a limitation in areas of the Gilpin soil.
- The high shrink-swell potential, low soil strength, and the slope are limitations on sites for local roads and streets in areas of the Latham soil, while the slope is a limitation in areas of the Gilpin soil.
- Installing specially designed systems approved by the local health department helps to overcome the limitations affecting septic tank absorption fields.
- Installing foundation drains, sealing foundation walls, diverting water away from homesites, and backfilling with porous materials help to prevent the damage caused by wetness on sites for dwellings with basements.
- Constructing roads and streets along the contour and on suitable subgrade material and installing a surface and subsurface drainage system help to overcome the limitations on sites for local roads and streets.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 3R

Prime farmland: No
Hydric soil: No

LiD—Lily sandy loam, 15 to 25 percent slopes, very stony

Setting

Landscape position: On summits and shoulders of ridges; in areas of the Mahoning Sandstone Member of the Conemaugh Formation; throughout the county

Composition

Lily and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed leaf litter

Surface layer:
2 to 8 inches—brown sandy loam

Subsoil:
8 to 12 inches—light yellowish brown sandy loam
12 to 16 inches—strong brown loam
16 to 26 inches—strong brown clay loam
26 to 32 inches—strong brown loam

Substratum:
32 to 38 inches—yellowish brown and strong brown sandy loam

Bedrock:
38 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low to moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Moderately low or moderate
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Areas of disturbed soils
- Soils with slopes of more than 25 percent
- Soils that are less than 20 inches deep over bedrock and contain more than 35 percent rock fragments throughout

Use and Management

Uses: Most areas of this Lily soil are used as woodland. A few areas are used as hayland or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- The hazard of erosion is severe in unprotected areas.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a hazard on logging roads and skid trails.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- Excavation for building sites is hampered by the shallow depth to bedrock.
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to control erosion.
- Building on the bedrock and landscaping with additional fill may be preferable to excavating the bedrock.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

LiE—Lily sandy loam, 25 to 35 percent slopes, very stony

Setting

Landscape position: On summits and shoulders of ridges; in areas of the Mahoning Sandstone Member of the Conemaugh Formation; throughout the county

Composition

Lily and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed litter

Surface layer:
2 to 8 inches—brown sandy loam

Subsoil:
8 to 12 inches—light yellowish brown sandy loam
12 to 16 inches—strong brown loam
16 to 26 inches—strong brown clay loam
26 to 32 inches—strong brown loam

Substratum:
32 to 38 inches—yellowish brown and strong brown sandy loam

Bedrock:
38 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low to moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Moderately low or moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Areas of disturbed soils
- Soils with slopes of more than 35 percent
- Soils that are less than 20 inches deep over bedrock and contain more than 35 percent rock fragments throughout

Use and Management

Uses: Most areas of this Lily soil are used as woodland. A few areas are used for hay or pasture.

Cropland
Suitability: Unsuited
Management considerations:
- The hazard of erosion is severe in unprotected areas.

Pasture and Hayland
Suitability: Suited to pasture; unsuited to hay
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.

- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope.
- Proper stocking rates, uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a hazard on logging roads and skid trails.
- The hazard of erosion can be minimized by building logging roads and trails on the contour; seeding roads, landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- Excavation for building sites is hampered by the shallow depth to bedrock.
- Because of the slope, this soil is poorly suited to building site development unless extensive land shaping is completed.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to control erosion.
- Building on the bedrock and landscaping with additional fill may be preferable to excavating the bedrock.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

Lo—Lobdell loam, occasionally flooded

Setting

Landscape position: On nearly level, low flood plains along small streams and intermittent drainageways; throughout the county

Composition

Lobdell and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 20 inches—dark yellowish brown loam
20 to 38 inches—dark yellowish brown, mottled loam

Substratum:
38 to 65 inches—dark yellowish brown, mottled stratified silt loam and loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 24 to 42 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, strongly acid to neutral in the solum and moderately acid to neutral in the substratum
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are subject to frequent flooding
- Holly soils

Use and Management

Uses: Most areas of this Lobdell soil are used as hayland or pasture.

Cropland
Suitability: Suited
Management considerations:
- The flooding may damage crops or delay fieldwork.
- The seasonal high water table restricts the root zone for some plants.
- Protecting the soil against flooding and maintaining a surface and subsurface drainage system minimize crop damage.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Flooding deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- The hay and pasture plants that can withstand the seasonal wetness and the periodic inundation by floodwater should be selected for planting.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Equipment use is restricted during wet periods because the soil is soft when wet.
- Undesirable plants hinder adequate natural and artificial reforestation in areas where intensive site preparation and maintenance are not done.
- The species that can tolerate the seasonal wetness should be selected for planting.

- Equipment should be used during the dry summer months and during periods in winter when the snow cover is adequate or the soil is frozen to minimize rutting.
- If trees are planted, site preparation by mechanical or chemical means is needed to help control competing vegetation.
- Subsequent control of undesirable vegetation may be needed.

Community Development
Suitability: Poorly suited
Management considerations:
- The wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to overcome the wetness.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: Yes
Hydric soil: No

MIE—Matewan-Latham complex, 25 to 35 percent slopes, very stony

Setting

Landscape position: On shoulders and narrow summits of ridges; in areas underlain by sandstone, siltstone, and shale of the Conemaugh Formation; in the eastern part of the county
Note: The Matewan and Latham soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Matewan, Latham, and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—moderately decomposed, very dark brown leaf litter

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard sandstone

Latham
Surface layer:
0 to 4 inches—dark brown silt loam

Subsoil:
4 to 7 inches—yellowish brown channery silt loam
7 to 16 inches—yellowish brown channery silty clay loam
16 to 23 inches—light yellowish brown, mottled channery silty clay
23 to 29 inches—yellowish brown, mottled channery silty clay

Substratum:
29 to 34 inches—yellowish brown channery silty clay

Bedrock:
34 to 39 inches—soft interbedded acid gray shale and siltstone

Soil Properties and Qualities

Drainage class: Matewan—well drained or somewhat excessively drained; Latham—moderately well drained
Permeability: Matewan—moderately rapid or rapid; Latham—very slow
Available water capacity: Low
Depth to a seasonal high water table: Matewan—more than 72 inches; Latham—18 to 36 inches
Flooding: None
Shrink-swell potential: Matewan—low; Latham—high
Hazard of erosion: Severe
Slope class: Steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to moderately acid throughout the Matewan soil and extremely acid to slightly acid in the A horizon and extremely acid or very strongly acid in the subsoil and substratum of the Latham soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Inclusions

Limiting inclusions:
- Soils that have been disturbed
- Soils with slopes of more than 35 percent
- Areas where stones cover more than 3 percent of the soil surface

Use and Management

Uses: Most areas of this map unit are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- Because of the slope, this map unit is generally unsuited to cultivated crops.
- The hazard of erosion is severe in unprotected areas.

- In some areas, rock fragments in the surface layer and on the surface may interfere with tillage and planting.
- The seasonal wetness may delay tillage and planting in the spring in areas of the Latham soil.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The slope and the surface stones make the operation of conventional equipment used in clipping and applying fertilizer difficult.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderate
Management considerations:
- Erosion is a severe hazard on logging sites.
- The steep slopes make the operation of logging equipment hazardous.
- Plant competition is moderate if openings are made in the canopy.
- Seedling mortality may be a problem on southern aspects because of the droughtiness during the summer months.
- Establishing skid roads and trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.
- Because of the slope, logging roads should be designed so that they conform to the topography.
- Carefully managed reforestation helps to control undesirable understory plants.
- Planting when the soil is moist can reduce the seedling mortality rate.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- The seasonal wetness in areas of the Latham soil limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 3R on north-facing slopes and 2R on south-facing slopes
Prime farmland: No
Hydric soil: No

MPF—Matewan-Pineville-Guyandotte association, very steep, extremely stony

Setting

Landscape position: Matewan—on convex and linear side slopes of hills and on shoulders, nose slopes, and summits of some ridges; Pineville—typically on the middle and lower side slopes of hills, footslopes, and benches and in south-facing coves; Guyandotte—typically in north-facing coves and on the middle and lower, north-facing side slopes of hills; in areas dominated by sandstone bedrock of the Kanawha and Allegheny Formations

Composition

Matewan, Pineville, Guyandotte, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—moderately decomposed, very dark brown leaf litter

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard sandstone

Pineville
Organic layers:
0 to 2 inches—slightly decomposed forest litter
2 to 3 inches—moderately decomposed organic material

Surface layer:
3 to 5 inches—brown channery loam

Subsoil:
5 to 8 inches—yellowish brown channery loam
8 to 16 inches—dark yellowish brown channery loam
16 to 39 inches—dark yellowish brown channery sandy clay loam
39 to 50 inches—yellowish brown channery sandy clay loam

Substratum:
50 to 67 inches—yellowish brown channery sandy clay loam

Guyandotte
Organic layer:
0 to 1 inch; slightly decomposed leaf litter

Surface soil:
1 to 7 inches—very dark grayish brown channery loam
7 to 14 inches—dark brown channery loam

Subsoil:
14 to 22 inches—brown channery loam
22 to 31 inches—dark yellowish brown very channery loam
31 to 54 inches—yellowish brown very channery loam

Substratum:
54 to 66 inches—yellowish brown extremely channery loam

Soil Properties and Qualities

Drainage class: Matewan—well drained or somewhat excessively drained; Pineville and Guyandotte—well drained
Permeability: Matewan—moderately rapid or rapid; Pineville—moderate; Guyandotte—moderate or moderately rapid
Available water capacity: Matewan—low; Pineville—moderate or high; Guyandotte—moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 5 to 10 percent of the surface covered by stones
Rockiness: None
Natural fertility: Matewan—low or medium; Pineville—medium; Guyandotte—high
Reaction: In unlimed areas, extremely acid to neutral in the surface layer and extremely acid to moderately acid in the subsoil and substratum of the Pineville and Guyandotte soils and extremely acid to moderately acid throughout the Matewan soil
Organic matter content in the surface layer: Matewan and Pineville—moderate; Guyandotte—very high
Surface runoff: Very high
Depth to bedrock: Matewan—20 to 40 inches; Pineville and Guyandotte—more than 60 inches

Inclusions

Limiting inclusions:
- Shallow soils
- Soils that have a fragipan
- Areas of bedrock escarpment
- Soils with slopes of more than 65 percent
- Areas where boulders cover 1 to 3 percent of the soil surface

Use and Management

Uses: Most areas of this map unit are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- This map unit should not be used for cultivated crops because of the steepness of slope, the severe hazard of erosion, and an equipment limitation.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.

- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate to high
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Because of the steepness of slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Landings should be established in the less sloping areas along the contour.
- Establishing logging roads and skid trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- The steepness of slope, a severe hazard of erosion on construction sites, and a severe hazard of slippage are the major management concerns.
- Because of the steepness of slope, this map unit generally is unsuited to building site development.
- Building roads and streets on the contour helps to overcome the slope on sites for local roads and streets.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: Matewan—3R; Pineville and Guyandotte—5R on north aspects and 4R on south aspects
Prime farmland: No
Hydric soil: No

Mr—Middlebury loam, frequently flooded

Setting

Landscape position: On low flood plains along small streams and intermittent drainageways; in the southern part of the county

Composition

Middlebury and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loam

Subsoil:
7 to 12 inches—dark yellowish brown loam
12 to 19 inches—yellowish brown loam

19 to 30 inches—yellowish brown, mottled fine sandy loam
30 to 43 inches—light brownish gray and brownish yellow, mottled fine sandy loam

Substratum:
43 to 52 inches—light gray sandy loam
52 to 65 inches—light brownish gray and strong brown gravelly loamy sand

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to neutral throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Holly soils
- Orrville soils
- Skidmore soils
- Yeager soils

Use and Management

Uses: Most areas of this Middlebury soil are used as hayland or woodland. Some areas are used for cultivated crops, gardens, or pasture.

Cropland
Suitability: Well suited
Management considerations:
- The flooding frequently delays fieldwork or damages crops.
- This soil is subject to streambank erosion in some areas.
- Runoff from the adjacent hillsides can cause scouring and sedimentation in areas of this soil.
- The seasonal high water table may delay cultivation during the spring months.
- Protecting the soil against flooding and maintaining a drainage system help to prevent crop damage.
- If a good surface drainage system is installed, late-planted crops can be grown after the normal flooding period.
- Leaving a border of trees along streams helps to prevent streambank erosion.
- The installation of diversions helps to control runoff and overwash from adjacent hillsides.
- Excess water can be removed by open ditches, subsurface drains, surface drains, pumps, or a combination of these.

Pasture and Hayland
Suitability: Well suited

Management considerations:
- The flooding frequently deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- This soil is soft when wet and, as a result, is susceptible to excessive rutting if logging equipment is used during wet periods.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding can help desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.
- Limiting operation of logging equipment to midsummer, when the soil is relatively dry, or midwinter, when the soil is frozen or has adequate snow cover, helps to prevent excessive rutting.

Community Development
Suitability: Poorly suited
Management considerations:
- The frequent flooding and stream scouring and sedimentation are management concerns.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Constructing roads, buildings, and houses on elevated, well compacted fill material helps to prevent the damage caused by flooding.
- Establishing a plant cover in unprotected areas and properly disposing of surface water help to control stream scouring and sedimentation.
- Installing a drainage system around structures with basements and crawl spaces helps to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: No
Hydric soil: No

Ms—Moshannon silt loam, occasionally flooded

Setting

Landscape position: On low flood plains along the major streams; mainly in the northern part of the county
Note: Occasional flooding in winter and early spring

Composition

Moshannon and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 14 inches—reddish brown silt loam
14 to 26 inches—yellowish red silt loam
26 to 37 inches—yellowish red loam

Substratum:
37 to 65 inches—brown stratified loam, sandy loam, and loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to neutral in the surface layer and substratum and moderately acid or slightly acid in the subsoil
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Lindside soils
- Newark soils
- Senecaville soils
- Vandalia soils on footslopes

Use and Management

Uses: Most areas of this Moshannon soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management considerations:
- The hazard of erosion and the water quality of streams are management concerns.
- The flooding may delay fieldwork or damage crops.
- Crop residue management and a cropping sequence that includes close-growing crops help to control water erosion.
- Leaving a border of trees along streams may help to prevent streambank erosion.
- To protect the quality of surface water and ground water, nutrients in manure and fertilizer applications should not exceed the plant nutrient requirements.
- Some areas may be protected against flooding by dikes or by water-retention structures.

Pasture and Hayland
Suitability: Suited

Management considerations:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major management concerns in pastured areas.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- The flooding deposits debris on the grassland.
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.
- Lime and fertilizer should be applied according to the results of soil tests to ensure maximum growth of plants, especially legumes.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.
- Some areas may be protected against flooding by dikes or by water-retention structures.

Woodland
Potential productivity: Moderately high
Management considerations:
- This soil is soft when wet and, as a result, is susceptible to excessive rutting if logging equipment is used during wet periods.
- Plant competition is a management concern.
- Restricting use of logging equipment during wet periods helps to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means may be needed to help control competing vegetation.

Community Development
Suitability: Unsuited to building site development; limited as a site for local roads and streets
Management considerations:
- The frequent flooding and the potential for frost action are management concerns.
- A suitable alternative building site in an adjacent area that is not on the flood plain should be selected.
- Installing cross-culverts or other surface water removal systems as well as adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.
- Providing suitable subgrade material helps to prevent any road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: Yes
Hydric soil: No

Ne—Nelse silt loam, 3 to 25 percent slopes, frequently flooded

Setting

Landscape position: On gently sloping to moderately steep banks along the major streams and rivers

Composition

Nelse and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown silt loam
5 to 18 inches—dark brown loam with strata of dark yellowish brown loamy fine sand

Substratum:
18 to 65 inches—yellowish brown sandy loam and loamy fine sand with strata of dark yellowish brown sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid or rapid
Available water capacity: Low
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Gently sloping to moderately steep
Stoniness: None
Rockiness: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to moderately alkaline
Organic matter content in the surface layer: High
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Soils that are severely eroded

Use and Management

Uses: Most areas of this Nelse soil are used for woodland. Some less sloping benchlike areas are used for corn, vegetable crops, or pasture.

Cropland
Suitability: Poorly suited
Management considerations:
- The steepness of slope, the frequent flooding, and streambank erosion are management concerns.
- Protecting the soil against flooding and maintaining a drainage system help to prevent crop damage.
- Conservation practices are needed to help prevent streambank erosion.

Pasture and Hayland
Suitability: Poorly suited
Management considerations:
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- The flooding frequently deposits debris on the grassland.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: High
Management considerations:
- Erosion is a severe hazard if the slope is more than 15 percent.

- Plant competition is severe if openings are made in the canopy.
- Seedling mortality is a management concern during dry periods.
- Building logging roads and skid trails on the contour helps to control erosion.
- Exposing the soil immediately prior to the production of a seed crop, or prior to artificial seeding, can help desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.
- Planting seedlings that can withstand droughty conditions reduces the seedling mortality rate.

Community Development
Suitability: Unsuited
Management considerations:
- The flooding and the steepness of slope are the major management concerns.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 9R in areas with slopes of more than 15 percent and 9S in areas with slopes of 3 to 15 percent
Prime farmland: No
Hydric soil: No

Or—Orrville loam, occasionally flooded

Setting

Landscape position: On low flood plains along the major rivers and streams; throughout the central and northern parts of the county

Composition

Orrville and similar soils: 93 percent
Dissimilar inclusions: 7 percent

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown loam

Subsoil:
6 to 12 inches—dark yellowish brown silt loam
12 to 17 inches—dark yellowish brown, mottled silt loam
17 to 30 inches—gray, mottled silt loam
30 to 36 inches—gray and yellowish brown silt loam

Substratum:
36 to 65 inches—gray loam

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Moderate or moderately rapid
Available water capacity: High
Depth to a seasonal high water table: 12 to 24 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None

Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, slightly acid to strongly acid in the A, BA, and Bw horizons and neutral to strongly acid in the Bg and Cg horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are subject to frequent flooding
- Holly soils

Use and Management

Uses: Most areas of this Orrville soil are used as hayland.

Cropland
Suitability: Suited to cultivated crops
Management considerations:
- The seasonal wetness may delay tillage and planting in the spring.
- The flooding, which occurs occasionally and lasts for a very brief duration, may delay fieldwork or damage crops.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed and flooding is controlled.

Pasture and Hayland
Suitability: Well suited to hay and pasture plants that can tolerate the wetness
Management considerations:
- Grazing early in the spring when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- The flooding occasionally deposits debris on the grassland.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Grazing should be deferred in the spring until the soil is firm and dry.
- The hay and pasture plants that can withstand the seasonal wetness and the periodic inundation by floodwater should be selected for planting.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: Moderately high
Management considerations:
- The operation of logging equipment during wet periods may result in excessive rutting.
- Establishment of tree seedlings is poor because of the plant competition from undesirable vegetation.
- Limiting operation of logging equipment to midsummer, when the soil is relatively dry, or midwinter, when the soil is frozen or has adequate snow cover, minimizes the formation of ruts and helps to control erosion.
- Plant competition can be controlled by creating areas of bare soil during site preparation or limiting the size of the openings in the canopy.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal wetness and the occasional flooding limit excavation and trafficability and may delay construction activities in the winter and spring.

- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Cutbanks may seep during wet periods.
- Installing a drainage system around structures with basements and crawl spaces helps to prevent the damage caused by wetness.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing the roads on raised fill material and installing a drainage system help to overcome the wetness.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: No
Hydric soil: No

PvE—Pineville channery loam, 25 to 35 percent slopes, extremely stony

Setting

Landscape position: In coves and on footslopes, colluvial fans, benches, and the lower side slopes of hills; in the southern part of the county

Composition

Pineville and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Organic layers:
0 to 2 inches—slightly decomposed leaf litter
2 to 3 inches—moderately decomposed organic material

Surface layer:
3 to 5 inches—brown channery loam

Subsoil:
5 to 16 inches—yellowish brown and dark yellowish brown channery loam
16 to 50 inches—dark yellowish brown and yellowish brown channery sandy clay loam

Substratum:
50 to 67 inches—yellowish brown channery sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Steep
Stoniness: 3 to 15 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium

Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are 20 to 40 inches deep over bedrock
- Soils with slopes of more than 35 percent
- Soils that are severely eroded
- Areas of disturbed soils

Use and Management

Uses: Most areas of this Pineville soil are used as woodland. A few areas have been cleared and are used as pasture.

Cropland
Suitability: Unsuited
Management considerations:
- The steepness of slope and a severe hazard of erosion are the major management concerns.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- Erosion is a severe hazard if the sod if removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Proper stocking rates, controlled grazing, and restricted use during dry periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Erosion is a severe hazard affecting logging roads and skid trails.
- Designing logging roads and skid trails so that they conform to the topography helps to control erosion and to ensure the safe operation of logging equipment.

Community Development
Suitability: Poorly suited
Management considerations:
- The steepness of slope is a management concern.
- Erosion is a severe hazard affecting building site development and road construction.
- Extensive land shaping is needed on building sites because of the steepness of slope.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.

Interpretive Groups

Land capability classification: 7s

Woodland ordination symbol: 5R on north aspects and 4R on south aspects
Prime farmland: No
Hydric soil: No

RmF—Rayne-Matewan complex, 35 to 65 percent slopes, very stony

Setting

Landscape position: On convex and linear side slopes of hills and on shoulders of ridges; in areas underlain by interbedded shale, siltstone, and fine grained sandstone bedrock of the Conemaugh Formation; throughout the northern and central parts of the county
Note: The Rayne and Matewan soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Rayne, Matewan, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Rayne
Organic layer:
0 to 2 inches—slightly decomposed forest leaf litter

Surface layer:
2 to 7 inches—brown silt loam

Subsoil:
7 to 11 inches—yellowish brown and brown channery silt loam
11 to 21 inches—yellowish brown channery silt loam
21 to 35 inches—yellowish brown channery silty clay loam
35 to 44 inches—yellowish brown, mottled very channery silt loam

Substratum:
44 to 48 inches—yellowish brown, mottled very channery silt loam

Bedrock:
48 to 53 inches—interbedded soft shale and siltstone

Matewan
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—moderately decomposed leaf litter

Surface layer:
4 to 6 inches—olive brown sandy loam

Subsoil:
6 to 9 inches—olive brown channery sandy loam
9 to 26 inches—yellowish brown channery sandy loam

Substratum:
26 to 34 inches—yellowish brown and dark yellowish brown extremely channery sandy loam

Bedrock:
34 inches—hard, yellowish brown sandstone

Soil Properties and Qualities

Drainage class: Rayne—well drained; Matewan—well drained or somewhat excessively drained
Permeability: Rayne—moderate; Matewan—moderately rapid or rapid
Available water capacity: Rayne—moderate; Matewan—low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to moderately acid throughout the Rayne soil and extremely acid to moderately acid throughout the Matewan soil
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: Rayne—40 to 60 inches; Matewan—20 to 40 inches

Inclusions

Limiting inclusions:
- Shallow soils
- Soils with a fragipan
- Areas of bedrock escarpment
- Areas of rock outcrop
- Soils with slopes of more than 65 percent
- Areas where stones cover more than 3 percent of the soil surface
- Udorthents

Use and Management

Uses: Most areas of this map unit are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- This map unit should not be used for cultivated crops because of the steepness of slope, the severe hazard of erosion, and an equipment limitation.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate to high
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are the main management concerns.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.

- Landings should be established in the less sloping areas along the contour.
- Establishing logging roads and skid trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.

Community Development
Suitability: Unsuited
Management considerations:
- The steepness of slope, a severe hazard of erosion on construction sites, and a severe hazard of slippage are the main management concerns.
- Building roads and streets on the contour helps to overcome the slope.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7e
Woodland ordination symbol: Rayne—4R; Matewan—3R
Prime farmland: No
Hydric soil: No

Sc—Senecaville silt loam, occasionally flooded

Setting

Landscape position: On flood plains along Trace Fork and Big Creek; in the northern part of the county

Composition

Senecaville and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 16 inches—reddish brown silt loam
16 to 30 inches—reddish brown, mottled silt loam

Substratum:
30 to 48 inches—dark reddish gray, mottled silt loam
48 to 65 inches—gray fine sandy loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Available water capacity: High
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None

Natural fertility: Medium
Reaction: In unlimed areas, strongly acid to slightly acid
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Melvin soils
- Soils that are frequently flooded
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Senecaville soil are used as hayland or woodland. A few areas are used as pasture.

Cropland
Suitability: Suited
Management considerations:
- The flooding may damage crops early in the growing season.
- The seasonal wetness may delay tillage and planting in the spring.
- Most crops adapted to the survey area can be grown if an adequate drainage system is installed and flooding is controlled.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.
- Access to streams by livestock should be limited to protected crossings.

Woodland
Potential productivity: High
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- The operation of logging equipment during wet periods results in excessive rutting.
- Competing vegetation can generally be controlled by mechanical means.
- Logging equipment can be used during dry summer months and during periods in winter when the snow cover is adequate or the soil is frozen.

Community Development
Suitability: Poorly suited
Management considerations:
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Buildings can be constructed on well compacted fill material that raises the site a sufficient distance above the water table.
- Constructing roads on raised fill material and installing a drainage system help to overcome the wetness.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 5A
Prime farmland: Yes
Hydric soil: No

SeA—Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape position: On alluvial fans at the mouth of hollows and on narrow flood plains along small streams and intermittent drainageways; throughout the county

Composition

Sensabaugh and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 15 inches—dark yellowish brown loam
15 to 24 inches—brown gravelly loam
24 to 30 inches—brown gravelly fine sandy loam

Substratum:
30 to 40 inches—brown very gravelly loam
40 to 65 inches—brown, mottled very gravelly loam

Bedrock:
65 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Occasional
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to moderately alkaline
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are frequently flooded

- Soils that are strongly acid or very strongly acid throughout
- Orrville soils
- Soils with slopes of more than 3 percent
- Skidmore soils

Use and Management

Uses: Most areas of this Sensabaugh soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management considerations:
- Streambank erosion and water quality are management concerns.
- The flooding occasionally delays fieldwork or damages crops.
- Leaving a border of trees along streams and applying riprap reduce the hazard of streambank erosion.
- Cover crops and green manure crops protect the soil and use nutrients, which would otherwise be lost, from the root zone of most plants.
- To protect the quality of surface water and ground water, nutrients in manure and fertilizer applications should not exceed the plant nutrient requirements.
- If a good surface drainage system is installed, late-planted crops can be grown after the normal flooding period.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- The flooding occasionally deposits debris on the grassland.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.
- If a good surface drainage system is installed, late-planted grass and legume species can be grown after the normal flooding period.

Woodland
Potential productivity: Moderately high
Management considerations:
- This soil is soft when wet and, as a result, is susceptible to excessive rutting if logging equipment is used during wet periods.
- Plant competition is a management concern.
- Restricting use of logging equipment during wet periods helps to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means is needed to control competing vegetation.
- Mulch seedlings, when practical, to conserve soil moisture and control competing vegetation.

Community Development
Suitability: Unsuited to building site development; limited on sites for roads and streets
Management considerations:
- The hazard of flooding is the main management concern.

- A suitable alternative building site in an adjacent area that is not on the flood plain should be selected.
- Installing cross-culverts or other surface water removal systems as well as adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 8A
Prime farmland: Yes
Hydric soil: No

SfB—Sensabaugh loam, 3 to 8 percent slopes, rarely flooded

Setting

Landscape position: On alluvial fans at the mouth of hollows and on narrow flood plains along small streams and intermittent drainageways; throughout the county

Composition

Sensabaugh and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 15 inches—dark yellowish brown loam
15 to 24 inches—brown gravelly loam
24 to 30 inches—brown gravelly fine sandy loam

Substratum:
30 to 40 inches—brown very gravelly loam
40 to 65 inches—brown, mottled very gravelly loam

Bedrock:
65 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Rare
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to moderately alkaline
Organic matter content in the surface layer: Moderate
Surface runoff: Very low

Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are occasionally flooded
- Soils that are strongly acid or very strongly acid throughout
- Orrville soils
- Soils with slopes of more than 8 percent
- Lobdell soils
- Skidmore soils

Use and Management

Uses: Most areas of this Sensabaugh soil have been cleared and are used as cropland, hayland, or pasture. A few areas are wooded.

Cropland
Suitability: Suited
Management considerations:
- Streambank erosion and water quality are management concerns.
- The flooding may delay fieldwork or damage crops.
- Leaving a border of trees along streams and applying riprap reduce the hazard of streambank erosion.
- Cover crops and green manure crops protect the soil and use nutrients, which would otherwise be lost, from the root zone of most plants.
- To protect the quality of surface water and ground water, nutrients in manure and fertilizer applications should not exceed the plant nutrient requirements.
- If a good surface drainage system is installed, late-planted crops can be grown after the normal flooding period.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Unrestricted access to streams by livestock causes streambank erosion and water pollution.
- The flooding may deposit debris on the grassland.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of plants, especially legumes.
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep the pasture in good condition.
- Streambanks should be fenced.
- Access to streams by livestock should be limited to protected crossings.
- If a good surface drainage system is installed, late-planted grass and legume species can be grown after the normal flooding period.

Woodland
Potential productivity: Moderately high
Management considerations:
- This soil is soft when wet and, as a result, is susceptible to excessive rutting if logging equipment is used during wet periods.
- Plant competition is a management concern.
- Restricting use of logging equipment during wet periods helps to prevent excessive rutting.
- If trees are planted, site preparation by mechanical or chemical means is needed to control competing vegetation.
- Mulch seedlings, when practical, to conserve soil moisture and control competing vegetation.

Community Development

Suitability: Unsuited to building site development; limited on sites for roads and streets

Management considerations:

- The flooding is a hazard.
- A suitable alternative building site in an adjacent area that is not on the flood plain should be selected.
- Installing cross-culverts or other surface water removal systems as well as adding raised fill material and coarse grained base material will help to prevent the road damage caused by flooding.

Interpretive Groups

Land capability classification: 2e
Woodland ordination symbol: 8A
Prime farmland: Yes
Hydric soil: No

ShF—Sharpcrest-Hazleton complex, 35 to 75 percent slopes, extremely bouldery

Setting

Landscape position: On very steep, sharp-crested summits of ridges and very steep side slopes of hills; throughout the southern half of the county

Note: The Sharpcrest and Hazleton soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Sharpcrest, Hazleton, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Sharpcrest

Organic layers:
0 to 2 inches—slightly decomposed organic material
2 to 3 inches—fibrous mat of moderately decomposed roots and leaves

Surface layer:
3 to 9 inches—dark grayish brown coarse sandy loam

Subsoil:
9 to 16 inches—dark grayish brown and yellowish brown sandy loam
16 to 24 inches—yellowish brown sandy loam
24 to 31 inches—yellowish brown channery sandy loam

Substratum:
31 to 48 inches—yellowish brown very channery coarse sandy loam

Bedrock:
48 inches—hard sandstone

Hazleton

Organic layers:
0 to 4 inches—slightly decomposed leaf litter
4 to 5 inches—moderately decomposed organic material

Surface layer:
5 to 6 inches—dark grayish brown sandy loam

Subsoil:
6 to 9 inches—brown sandy loam
9 to 27 inches—yellowish brown channery sandy loam
27 to 45 inches—yellowish brown very channery sandy loam

Substratum:
45 to 50 inches—yellowish brown and dark yellowish brown very channery sandy loam

Bedrock:
50 inches—hard sandstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Sharpcrest—moderately rapid; Hazleton—moderately rapid or rapid
Available water capacity: Sharpcrest—moderate; Hazleton—low
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Very steep
Stoniness: 5 to 10 percent of the surface covered by stones
Rockiness: 2 to 3 percent rock outcrop
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Very high
Depth to bedrock: 40 to 60 inches

Inclusions

Limiting inclusions:
- Matewan soils
- Shallow soils
- Wharton soils
- Marrowbone soils
- Areas of bedrock escarpment
- Areas of rock outcrop

Use and Management

Uses: Most areas of these soils are used as woodland.

Cropland
Suitability: Unsuited
Management considerations:
- These soils should not be used for cultivated crops because of the steepness of slope, the severe hazard of erosion, and an equipment limitation.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- The steepness of slope and the severe hazard of erosion are management concerns.

- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderate to high
Management considerations:
- The steepness of slope, the severe hazard of erosion, and the equipment limitation are management concerns.
- Seedling mortality may be a problem on south-facing aspects due to droughtiness during the summer months.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Logging roads should be built on the contour or on the gentler sloping benches.
- The grade of the logging roads should be kept as low as possible.
- Establishing logging roads and skid trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion.
- Because of the stones and boulders on the soil surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Planting when the soil is moist can reduce the seedling mortality rate.

Community Development
Suitability: Unsuited
Management considerations:
- The steepness of slope, a severe hazard of erosion on construction sites, and the stones and boulders on the soil surface are management concerns.
- Building roads and streets on the contour helps to overcome the slope on sites for local roads and streets.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Woodland ordination symbol: Sharpcrest—6R on north aspects and 3R on south aspects; Hazleton—4R on north aspects and 3R on south aspects
Prime farmland: No
Hydric soil: No

SkC—Shelocta-Beech complex, 8 to 15 percent slopes

Setting

Landscape position: On footslopes and colluvial fans; throughout the central part of the county
Note: The Shelocta and Beech soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Shelocta, Beech, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Shelocta
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—very dark grayish brown, moderately decomposed organic material

Surface layer:
4 to 7 inches—brown silt loam

Subsoil:
7 to 14 inches—yellowish brown silty clay loam
14 to 58 inches—strong brown and brown channery silty clay loam

Substratum:
58 to 68 inches—dark yellowish brown very channery silty clay loam

Beech
Organic layer:
0 to 1 inch; slightly decomposed leaf litter

Surface layer:
1 to 7 inches—brown loam

Subsoil:
7 to 22 inches—yellowish brown channery loam
22 to 36 inches—strong brown, mottled channery clay loam
36 to 52 inches—yellowish brown, mottled very channery loam

Substratum:
52 to 65 inches—strong brown and light gray extremely channery loam

Soil Properties and Qualities

Drainage class: Shelocta—well drained; Beech—moderately well drained
Permeability: Shelocta—moderate; Beech—moderately slow or moderate
Available water capacity: Moderate
Depth to a seasonal high water table: Shelocta—more than 72 inches; Beech—18 to 36 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Moderate
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout the Shelocta soil and very strongly acid to moderately acid throughout the Beech soil
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 15 percent
- Soils that are severely eroded
- Areas of disturbed soils

Use and Management

Uses: Most areas of these soils are used as hayland or pasture. A few areas are used as woodland.

Cropland
Suitability: Suited
Management considerations:
- Water erosion is a severe hazard in unprotected areas.
- The seasonal wetness may delay tillage and planting in the spring.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- In some places diversions help to prevent overwash from adjacent upland side slopes.
- Keeping drainageways in permanent vegetative cover reduces the erosive action of running water.
- Installing subsurface drains helps to overcome the wetness if a suitable outlet is available.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.
- Grazing should be delayed in the spring until the soil is firm.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- These soils are soft when wet and, as a result, are susceptible to excessive rutting if logging equipment is used during wet periods.
- Carefully managed reforestation helps to control undesirable understory plants.
- Restricting use of logging equipment during wet periods helps to prevent excessive rutting.

Community Development
Suitability: Suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.
- Installing foundation drains, sealing foundations, and backfilling with porous materials help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 3e
Woodland ordination symbol: 4A
Prime farmland: No
Hydric soil: No

SlD—Shelocta-Beech complex, 15 to 25 percent slopes, very stony

Setting

Landscape position: On footslopes and colluvial fans; throughout the central part of the county
Note: The Shelocta and Beech soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Shelocta, Beech, and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Shelocta
Organic layers:
0 to 3 inches—slightly decomposed leaf litter
3 to 4 inches—very dark grayish brown, moderately decomposed organic material

Surface layer:
4 to 7 inches—brown silt loam

Subsoil:
7 to 14 inches—yellowish brown silty clay loam
14 to 58 inches—strong brown and brown channery silty clay loam

Substratum:
58 to 68 inches—dark yellowish brown very channery silty clay loam

Beech
Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 7 inches—brown loam

Subsoil:
7 to 22 inches—yellowish brown channery loam
22 to 36 inches—strong brown, mottled channery clay loam
36 to 52 inches—yellowish brown, mottled very channery loam

Substratum:
52 to 65 inches—strong brown and light gray extremely channery loam

Soil Properties and Qualities

Drainage class: Shelocta—well drained; Beech—moderately well drained
Permeability: Shelocta—moderate; Beech—moderately slow or moderate

Available water capacity: Moderate
Depth to a seasonal high water table: Shelocta—more than 72 inches; Beech—18 to 36 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: 2 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout the Shelocta soil and very strongly acid to moderately acid throughout the Beech soil
Organic matter content in the surface layer: Moderate
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils with slopes of more than 25 percent
- Soils that are severely eroded
- Areas of disturbed soils
- Areas where stones cover more than 3 percent of the soil surface

Use and Management

Uses: Most areas of these soils are used as hayland or pasture. A few areas are used as woodland.

Cropland
Suitability: Poorly suited
Management considerations:
- Water erosion is a severe hazard in unprotected areas.
- Seedbed preparation and harvesting may be difficult because of the surface stones.
- The seasonal wetness may delay tillage and planting in the spring.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- In some places diversions help to prevent overwash from adjacent upland side slopes.
- Removing the surface stones reduces wear on equipment.
- Keeping drainageways in permanent vegetative cover reduces the erosive action of running water.
- Installing subsurface drains helps to overcome the wetness if a suitable outlet is available.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.
- Grazing should be delayed in the spring until the soil is firm.

- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- These soils are soft when wet and, as a result, are susceptible to excessive rutting if logging equipment is used during wet periods.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Carefully managed reforestation helps to control undesirable understory plants.
- Restricting use of logging equipment during wet periods helps to prevent rutting.
- Establishing logging roads and skid trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion and ensure the safe operation of logging equipment.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because of the steepness of slope, these soils are poorly suited to building site development without extensive land shaping.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.
- Installing foundation drains, sealing foundations, and backfilling with porous materials help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 5R
Prime farmland: No
Hydric soil: No

SlE—Shelocta-Beech complex, 25 to 35 percent slopes, very stony

Setting

Landscape position: On footslopes and colluvial fans; throughout the central part of the county
Note: The Shelocta and Beech soils occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Shelocta, Beech, and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Shelocta

Organic layers:

0 to 3 inches—slightly decomposed leaf litter

3 to 4 inches—very dark grayish brown, moderately decomposed organic material

Surface layer:

4 to 7 inches—brown silt loam

Subsoil:

7 to 14 inches—yellowish brown silty clay loam

14 to 58 inches—strong brown and brown channery silty clay loam

Substratum:

58 to 68 inches—dark yellowish brown very channery silty clay loam

Beech

Organic layer:

0 to 1 inch—slightly decomposed leaf litter

Surface layer:

1 to 7 inches—brown loam

Subsoil:

7 to 22 inches—yellowish brown channery loam

22 to 36 inches—strong brown, mottled channery clay loam

36 to 52 inches—yellowish brown, mottled very channery loam

Substratum:

52 to 65 inches—strong brown and light gray extremely channery loam

Soil Properties and Qualities

Drainage class: Shelocta—well drained; Beech—moderately well drained
Permeability: Shelocta—moderate; Beech—moderately slow or moderate
Available water capacity: Moderate
Depth to a seasonal high water table: Shelocta—more than 72 inches; Beech—18 to 36 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Severe
Slope class: Steep
Stoniness: 2 percent
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, extremely acid to strongly acid throughout the Shelocta soil and very strongly acid to moderately acid throughout the Beech soil
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:

- Soils with slopes of more than 35 percent
- Soils that are severely eroded
- Areas of disturbed soils
- Areas where stones cover more than 3 percent of the soil surface

Use and Management

Uses: Most areas of these soils are used as hayland, pasture, or woodland.

Cropland
Suitability: Unsuited
Management considerations:
- The operation of conventional equipment is difficult because of the slope.
- Because of the surface stones, seedbed preparation and harvesting is difficult.
- The seasonal wetness delays tillage and planting in the spring.

Pasture and Hayland
Suitability: Unsuited to hay; poorly suited to pasture
Management considerations:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- The operation of conventional equipment used in clipping and applying fertilizer is difficult because of the slope and the surface stones.
- Grazing when the soil is too wet causes surface compaction and poor tilth and damages the sod.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.
- Grazing should be delayed in the spring until the soil is firm.
- The hay and pasture plants that can tolerate the seasonal wetness should be selected for planting.

Woodland
Potential productivity: Moderately high
Management considerations:
- Plant competition is severe if openings are made in the canopy.
- These soils are soft when wet and, as a result, are susceptible to excessive rutting if logging equipment is used during wet periods.
- Because of the slope, special care is needed when logging roads and landings are layed out and logging equipment is operated.
- Carefully managed reforestation helps to control undesirable understory plants.
- Restricting use of logging equipment during wet periods helps to prevent excessive rutting.
- Establishing logging roads and skid trails on the contour and removing water from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures help to control erosion and ensure the safe operation of logging equipment.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard on construction sites.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Because of the steepness of slope, these soils are poorly suited to building site development without extensive land shaping.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Seeding and mulching roadbanks after construction help to prevent excessive erosion.
- Installing foundation drains, sealing foundations, and backfilling with porous materials help to prevent the damage caused by wetness.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 4R on north aspects and 3R on south aspects
Prime farmland: No
Hydric soil: No

Sm—Skidmore gravelly sandy loam, frequently flooded

Setting

Landscape position: On narrow flood plains along the tributaries of streams; throughout the southern part of the county

Composition

Skidmore and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 10 inches—brown gravelly sandy loam

Subsoil:
10 to 22 inches—dark yellowish brown very gravelly sandy loam
22 to 30 inches—dark yellowish brown extremely cobbly sandy loam

Substratum:
30 to 65 inches—dark yellowish brown and brown extremely cobbly loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Depth to a seasonal high water table: 36 to 48 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: 15 to 35 percent
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid or slightly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Negligible
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Soils that are less than 60 inches deep over bedrock
- Lobdell soils
- Soils that have more than 35 percent gravel in the surface layer

Use and Management

Uses: Most areas of this Skidmore soil are used as woodland or pasture.

Cropland
Suitability: Suited

Management considerations:
- The flooding delays fieldwork and damages crops.
- The droughtiness and poor tilth are management concerns.
- Runoff from the adjacent hillsides can cause scouring and sedimentation in areas of this soil.
- Protecting the soil against flooding and maintaining a drainage system help to prevent crop damage.
- Because of the limited available water capacity, most crops should be irrigated.
- Applying a system of conservation tillage, growing cover crops, including grasses and legumes in the cropping sequence, and returning crop residue to the soil help to improve and maintain tilth and to maintain the content of organic matter.
- The installation of diversions helps to control runoff and overwash from adjacent upland backslopes.

Pasture and Hayland
Suitability: Well suited
Management considerations:
- The flooding deposits debris on the grassland.
- Maintaining natural fertility is a management concern.
- The species selected for planting should be those that can provide high-quality forage and satisfactory ground cover and are tolerant of the flooding.
- Proper stocking rates, pasture rotation, timely deferment of grazing, and applications of fertilizer help to keep the pasture in good condition.

Woodland
Potential productivity: High
Management considerations:
- The seedling mortality rate and plant competition are management concerns.
- Planting when the soil is moist can reduce the seedling mortality rate.
- Exposing the soil immediately prior to the production of a seed crop or prior to artificial seeding helps desirable tree seedlings to become established quickly and to compete better with undesirable vegetation.

Community Development
Suitability: Unsuited
Management considerations:
- The flooding is a management concern.
- Constructing roads, buildings, and houses on elevated, well compacted fill material helps to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 8W
Prime farmland: No
Hydric soil: No

Ud—Udorthents, smoothed

Setting

Landscape position: Excavated, graded, filled, and revegetated areas in the uplands; throughout the county

Composition

Udorthents: 85 percent
Limiting inclusions: 15 percent

Typical Profile

Udorthents differ greatly from place to place. Thus, a typical pedon is not given.

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow to very rapid
Available water capacity: Very low to high
Depth to a seasonal high water table: 12 to more than 72 inches
Flooding: None to frequent
Shrink-swell potential: Low to high
Hazard of erosion: Slight to severe
Slope class: Nearly level to very steep
Stoniness: 0 to 10 percent of the surface covered by stones
Rockiness: 1 to 3 percent rock outcrop
Natural fertility: Low to high
Reaction: In unlimed areas, extremely acid to moderately alkaline
Organic matter content in the surface layer: Very low to high
Surface runoff: Very low to high
Depth to bedrock: Generally at a depth of more than 40 inches; exposed bedrock extends more than 30 feet below the surface

Inclusions

Limiting inclusions:
- Areas of rock outcrop

Nonlimiting inclusions:
- Gilpin soils
- Upshur soils
- Vandalia soils
- Sensabaugh soils
- Chagrin soils
- Grigsby soils

Use and Management

Uses: This map unit is mainly used as woodland or wildlife habitat.
Management considerations:
- These soils have been altered to the extent that onsite investigation and testing are necessary to determine the limitations and potentials for any use.
- Maintaining a plant cover and providing for the proper disposal of surface water help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: None assigned
Woodland ordination symbol: None assigned
Prime farmland: No
Hydric soil: No

UkB—Urban land-Kanawha complex, 0 to 8 percent slopes, protected

Setting

Landscape position: On high flood plains and low terraces along the Guyandotte River

Note: Protected from flooding
Note: The Urban land and Kanawha soil occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Urban land and Kanawha and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Urban land
The Urban land consists of areas where the surface is covered by works or structures, such as streets, houses, concrete, or other impervious material.

Kanawha
Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsoil:
6 to 10 inches—dark yellowish brown silt loam
10 to 66 inches—yellowish brown silt loam

Substratum:
66 to 72 inches—yellowish brown loam

Soil Properties and Qualities

Kanawha
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Depth to a seasonal high water table: More than 72 inches
Flooding: None
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level or gently sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, strongly acid or moderately acid in the A and BA horizons and in the upper part of the Bt horizon and moderately acid to neutral in the lower part of the Bt horizon and in the BC and C horizons
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Monongahela soils
- Soils with slopes of more than 8 percent
- Udorthents
- Cotaco soils
- Soils that are subject to rare flooding

Use and Management

Uses: This map unit is generally unsuited to farming and woodland. Most areas are used as sites for urban development. Open areas are used for lawns or a few home gardens.

Community Development
Suitability: Suited
Management considerations:
- Shallow excavations can cave in because some cutbanks are not stable.
- Low strength and the potential for frost action are management concerns on sites for local roads and streets.
- The trench walls of shallow excavations should be reinforced.
- Providing suitable subgrade material helps to prevent the road damage caused by low strength and frost action.

Interpretive Groups

Land capability classification: Urban land—8s; Kanawha—none assigned
Woodland ordination symbol: None assigned
Prime farmland: No
Hydric soil: No

UuB—Udorthents-Urban land complex, 0 to 8 percent slopes, rarely flooded

Setting

Landscape position: On nearly level and gently sloping flood plains along the major streams; throughout the county
Note: The Udorthents and Urban land occur as areas so intermingled and small that mapping them separately is impractical.

Composition

Udorthents and Urban land: 75 percent
Dissimilar inclusions: 25 percent

Properties and Qualities

Udorthents
These soils generally consist of truncated areas and areas of heterogeneous fill material. The thickness of the material in these areas varies. Fertility, permeability, available water capacity, and other soil properties are dependent on the kind and source of the fill material. Udorthents also include areas that have been excavated or graded for construction.

Urban land
Urban land consists of areas where the surface is covered by works or structures, such as streets, houses, concrete, or other impervious material.

Inclusions

Limiting inclusions:
- Kanawha soils
- Allegheny soils
- Gilpin soils
- Grigsby soils
- Chagrin soils
- Cotaco soils
- Upshur soils
- Monongahela soils
- Soils that are occasionally flooded

Use and Management

The Udorthents have been altered to the extent that onsite investigation and testing are necessary to determine the limitations and potentials for any use. They are subject to rare flooding (one to five times in 100 years). Maintaining a plant cover and providing for the proper disposal of surface water help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: Udorthents—none assigned; Urban land—8s
Woodland ordination symbol: None assigned

Uw—Udorthents, earthen dam

This map unit consists of a raised structure (75 feet in height) of soil material that was constructed to impound water and protect land against overflow downstream of Upper Mud River Lake. It is in the central part of Lincoln County. The dam was constructed with 471,800 cubic yards of soil material that was compacted to medium density. Both weathered and unweathered sandstone were used as rockfill for the dam embankment areas.

The dam's core consists of compacted fine textured soil material that has slow permeability. Lithologic properties to a depth more than the core material may have an effect on the performance and safety of the dam; therefore, deeper geologic investigations of the strata were made to determine these properties prior to construction of the dam. The flood storage area to the emergency spillway crest of the dam is 8,850 acre feet. The drainage area of the Upper Mud River Watershed area is 32,826 acres, and the water surface area of the recreational pool is 306 acres. The dam was completed in 1992.

VaC—Vandalia silt loam, 8 to 15 percent slopes

Setting

Landscape position: On footslopes, colluvial fans, and side slopes of hills; throughout the northeastern part of the county

Composition

Vandalia and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—dark brown silt loam

Subsoil:
3 to 7 inches—brown silt loam
7 to 15 inches—strong brown channery silty clay loam
15 to 28 inches—yellowish red channery silty clay
28 to 55 inches—reddish brown channery clay
55 to 67 inches—reddish brown channery silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow

Available water capacity: Moderate
Depth to a seasonal high water table: 48 to 72 inches
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Strongly sloping
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: Low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Gilpin soils
- Soils that have 1 to 2 percent of their surface covered with stones
- Areas of bedrock escarpment

Use and Management

Uses: Most areas of this Vandalia soil are used as homesites, pasture, or hayland.

Cropland
Suitability: Suited
Management considerations:
- Erosion is a moderate hazard in unprotected areas.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a moderate hazard in unprotected areas.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing during wet periods are management concerns.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- The hazard of erosion on logging roads and skid trails is a management concern.
- Equipment use is restricted during wet periods because the soil is soft and slippery when wet.
- Building logging roads and skid trails on the contour helps to control erosion.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Suited
Management considerations:
- The hazard of erosion on construction sites, the high shrink-swell potential, and the hazard of slippage are management concerns.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.

- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Installing surface drainage ditches and cross culverts for surface water removal and providing suitable subgrade material help to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 3e
Woodland ordination symbol: 4C
Prime farmland: No
Hydric soil: No

VnD—Vandalia silt loam, 15 to 25 percent slopes, very stony

Setting

Landscape: On footslopes, colluvial fans, and side slopes of hills; throughout the northeastern part of the county

Composition

Vandalia and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 3 inches—dark brown silt loam

Subsoil:
3 to 7 inches—brown silt loam
7 to 15 inches—strong brown channery silty clay loam
15 to 28 inches—yellowish red channery silty clay
28 to 55 inches—reddish brown channery clay
55 to 67 inches—reddish brown channery silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate
Depth to a seasonal high water table: 48 to 72 inches
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Moderately steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate

Surface runoff: Medium
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Gilpin soils
- Soils that are severely eroded
- Areas of bedrock escarpment
- Soils with slopes of more than 25 percent

Use and Management

Uses: Most areas of this Vandalia soil are used as woodland. A small acreage is used as pasture or hayland.

Cropland
Suitability: Poorly suited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing during wet periods are management concerns.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a hazard on logging roads and skid trails.
- Equipment use is restricted during wet periods because the soil is soft and slippery when wet.
- Building logging roads and skid trails on the contour helps to control erosion.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Suited
Management considerations:
- The hazard of erosion on construction sites, the high shrink-swell potential, and the hazard of slippage are management concerns.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.

- Installing surface drainage ditches and cross culverts for surface water removal and providing suitable subgrade material help to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 4e
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

VnE—Vandalia silt loam, 25 to 35 percent slopes, very stony

Setting

Landscape: On footslopes, colluvial fans, and side slopes of hills; throughout the northeastern part of the county

Composition

Vandalia and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 3 inches—dark brown silt loam

Subsoil:
3 to 7 inches—brown silt loam
7 to 15 inches—strong brown channery silty clay loam
15 to 28 inches—yellowish red channery silty clay
28 to 55 inches—reddish brown channery clay
55 to 67 inches—reddish brown channery silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate
Depth to a seasonal high water table: 48 to 72 inches
Flooding: None
Shrink-swell potential: High
Hazard of erosion: Severe
Slope class: Steep
Stoniness: 1 to 3 percent of the surface covered by stones
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, moderately acid to very strongly acid throughout
Organic matter content in the surface layer: Moderate
Surface runoff: High
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Gilpin soils
- Soils that are severely eroded

- Areas of bedrock escarpment

Use and Management

Uses: Most areas of this Vandalia soil are used as woodland, pasture, or hayland.

Cropland
Suitability: Unsuited
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- A system of conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Unsuited to hay; suited to pasture
Management considerations:
- Erosion is a severe hazard in unprotected areas.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing during wet periods are management concerns.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep the pasture in good condition.

Woodland
Potential productivity: Moderately high
Management considerations:
- Erosion is a hazard on logging roads and skid trails.
- Equipment use is restricted during wet periods when the soil is soft and slippery.
- Building logging roads and skid trails on the contour helps to control erosion.
- Cable yarding systems are generally safer than other logging methods and result in less surface disturbance.

Community Development
Suitability: Poorly suited
Management considerations:
- Erosion on construction sites, the high shrink-swell potential, and the hazard of slippage are management concerns.
- Because the soil is soft when wet, road pavement is subject to cracking and buckling under heavy loads.
- Maintaining a plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Keeping surface water and subsurface water away from building sites and installing properly constructed retaining walls, where feasible, help to prevent the structural damage caused by slippage.
- Installing surface drainage ditches and cross culverts for surface water removal and providing suitable subgrade material help to prevent the road damage caused by low strength and by shrinking and swelling.

Interpretive Groups

Land capability classification: 6e
Woodland ordination symbol: 4R
Prime farmland: No
Hydric soil: No

W—Water

This map unit occurs as open areas of water deep enough to prohibit the growth of land plants. Ponds, lakes, perennial streams, and the Guyandotte River are examples of these areas.

Yg—Yeager fine sandy loam, frequently flooded

Setting

Landscape position: On nearly level low flood plains along streams; in the southern part of the county

Composition

Yeager and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed leaf litter

Surface layer:
1 to 5 inches—very dark grayish brown fine sandy loam

Substratum:
5 to 13 inches—brown fine sandy loam stratified with black coal
13 to 27 inches—yellowish brown loamy sand stratified with black coal
27 to 66 inches—yellowish brown sand stratified with black coal

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid or rapid
Available water capacity: Low
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequent
Shrink-swell potential: Low
Hazard of erosion: Slight
Slope class: Nearly level
Stoniness: None
Rockiness: None
Natural fertility: Medium
Reaction: In unlimed areas, very strongly acid to neutral
Organic matter content in the surface layer: Moderate
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Inclusions

Limiting inclusions:
- Skidmore soils

Use and Management

Uses: The areas of this Yeager soil are used for pasture, hay, or vegetable crops.

Cropland
Suitability: Poorly suited

Management considerations:
- The low available water capacity and the low natural fertility level are management concerns.
- The flooding frequently delays fieldwork or damages crops.
- Because of the limited available water capacity, most crops should be irrigated.
- Applying crop residue management, regularly adding other organic material, and no-till planting improve the organic matter content.
- Protecting the soil against flooding and maintaining a drainage system help to prevent crop damage.

Pasture and Hayland
Suitability: Suited
Management considerations:
- The flooding frequently deposits debris on the grassland.
- Constructing ditches near the foot of nearby hills to intercept excess water helps to control surface water runoff and overwash.
- Improvement of the stream channel reduces overflow.
- When establishing pasture, the grasses and legumes selected for planting should be those that provide a good ground cover, can tolerate short periods of flooding, and can withstand droughtiness.

Woodland
Potential productivity: High
Management considerations:
- The sandy texture of the surface layer restricts the use of wheeled equipment when the soil is saturated or very dry.
- Reforestation is severely limited by the sandy texture and the frequent flooding.
- Undesirable plants hinder adequate natural and artificial reforestation in areas where intensive site preparation and maintenance are not done.
- Restricting equipment use to winter when skid roads and access roads are frozen helps to prevent excessive rutting.
- Planting when the soil is moist and mulching seedlings, when practical, reduce the seedling mortality rate.
- If trees are planted, site preparation by mechanical or chemical means helps to control competing vegetation.
- Subsequent control of undesirable vegetation may be needed.

Community Development
Suitability: Unsuited
Management considerations:
- The flooding is a hazard affecting community development.

Interpretive Groups

Land capability classification: 2w
Woodland ordination symbol: 6A
Prime farmland: No
Hydric soil: No

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Some general principles of management apply to all of the soils in the county suitable for crops and pasture, although individual soils or groups of soils require different kinds of management. The main management needs on the cropland and pasture in the county are measures that help to control erosion; minimize water pollution caused by runoff containing soil particles, nutrients, organic matter, pesticides, and herbicides; and maintain and improve soil fertility and tilth. The general principles of management are described in the following paragraphs.

Runoff and erosion occur mainly while a cultivated crop is growing or soon after it has been harvested. If cultivated, all of the gently sloping and steeper soils in the county are subject to erosion. Erosion of the surface layer is damaging because it reduces the productivity of the soils and can result in sedimentation of streams, ponds, lakes, and rivers. Soil productivity is reduced as organic matter and plant nutrients are lost and part of the subsoil is incorporated into the plow layer. Surface erosion is especially damaging on Upshur and other soils that have a clayey subsoil or on Gilpin and other soils that are moderately deep (20 to 40 inches) to bedrock. The pollution caused by erosion reduces the quality of water for municipal and recreational uses and for livestock, fish, and wildlife. A suitable cropping system that helps to control erosion is needed on these soils. The main management needs where such a system is applied are the proper crop rotation, a conservation tillage system, crop residue management, cover crops and green manure crops, and applications of lime and fertilizer. Other major erosion-control measures are contour farming, diversion of runoff, and grassed waterways. The effectiveness of a particular combination of these measures differs from one soil to another. Different combinations can be equally effective on the same soil.

Using the soils for pasture is effective in controlling erosion in most areas of the county. A high level of pasture management, including applications of fertilizer, controlled grazing, rotation grazing, and careful selection of pasture mixtures, is needed on some soils to provide enough ground cover to prevent excessive erosion. Grazing can be controlled by not allowing the plants to be grazed lower than 3 inches, by rotating livestock from one pasture to another, and by providing rest periods, which allow for regrowth of the plants. On some soils the pasture species that require the least renovation are needed to maintain a good ground cover and to provide forage for grazing.

Most of the soils in the county have a moderate or low natural supply of basic plant nutrients. As a result, applications of lime and fertilizer are necessary. The amounts to be applied depend on the type of soil, the cropping history, the type of crop to be grown, and the level of desired yields and should be determined by the results of soil tests and analyses. Measures that help to maintain fertility levels include adding farm

manure, returning crop residue to the soil, and growing sod crops, cover crops, and green manure crops.

Tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Soils that have good tilth have a surface layer that is granular and porous and have a moderate or high organic matter content. Soils that have poor tilth have structure that is weak and generally have low organic matter content. In areas with poor soil tilth, a surface crust generally forms during periods of heavy rainfall. Since the crust is hard when dry and nearly impervious to water, it reduces the rate of water infiltration and increases the rate of runoff and the hazard of erosion. Tillage tends to break down soil structure, especially during periods of wetness. As a result, it should be kept to the minimum necessary to prepare a seedbed and help control weeds. Continuously cropping the same field for a long period of time lowers the organic matter content and reduces tilth, the rate of permeability, and, ultimately, yields. Maintaining the content of organic matter in the plow layer helps to maintain soil structure. Including grasses and legumes in the cropping sequence and adding manure or other organic material to the soil help to maintain the organic matter content.

Many small areas in Lincoln County are used for home gardens. The soils that are best suited to garden crops are nearly level or gently sloping, loamy, moderately permeable, and well drained; have a high available water capacity; and have less than 15 percent rock fragments in the surface layer. Examples are the Kanawha, Moshannon, and Chagrin soils. The soil pH, or the degree of acidity or alkalinity as determined by means of a glass, quinhydrone, or other suitable electrode or indicator at a specified moisture content or soil-water ratio, should be between 6.0 and 7.0 for most garden plants.

The suitability of the soils in the county to produce grasses and legumes varies widely because of differences in the depth to bedrock or other root-limiting layers, drainage, the ability to supply moisture, and many other properties. The selection of forage species is important, and the species that are selected should be those that are suited to the different kinds of soils. Nearly level and gently sloping, well drained soils should be used for the most productive crops, such as corn silage, alfalfa, and a mixture of alfalfa and orchardgrass or alfalfa and timothy. Alfalfa should be grown with cool-season grasses in areas where the soil is at least 2 feet deep over bedrock and is well drained. The more poorly drained soils, the soils that are less 40 inches deep over a seasonal high water table, and the soils that are less than 2 feet deep over bedrock are suited to clover-grass mixtures or to pure stands of clover or grasses. In pastured areas with steeper slopes, sod-forming grasses, such as tall fescue and bluegrass, minimize erosion. For critical areas, or areas that are bare and undergoing severe erosion, a grass-legume mixture, such as tall fescue and crownvetch, helps to control erosion if the ground cover is properly established.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable

high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,*

used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The acreage of soils in each capability class or subclass is shown in table 6. The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

Prime Farmland and Other Important Farmlands

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 5,925 acres in the survey area, or 2 percent of the total acreage, meets the soil requirements for prime farmland. Most of the acreage of this land is along the major rivers and their tributaries in the Grigsby-Chagrin-Lobdell-Orrville general soil map unit. Most areas are used as hayland or homesites or are fallow. In a few scattered, small areas, row crops, such as corn or tobacco, are grown.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

In some areas, land that does not meet the criteria for prime farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may

include tracts of land that have been designated for agriculture by State law. For the most part, these soils must meet the same criteria as prime farmland with the exception of slope. In Lincoln County, these soils have slopes that range mainly from 8 to 15 percent. More detailed information about the criteria for farmland of statewide importance is available at the local office of the Natural Resources Conservation Service.

About 17,322 acres, or 6 percent of the total acreage in the county, meets the soil requirements for farmland of statewide importance. Scattered areas of this land are throughout the county, but most are in the northern half. Agricultural land use in these areas is usually hay, pasture, or some isolated fields of corn or tobacco.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance. About 3,252 acres, or 1.2 percent of the total acreage in the county, meets the soil requirements for farmland of local importance.

The map units in the survey area that are considered prime farmland or farmland of statewide or local importance are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Tables 8a, 8b, and 8c show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of

wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and

the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Permanently frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied

wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Forest Productivity and Management

About 246,500 acres, or nearly 88 percent of the total acreage in the county, is used as woodland. The survey area is in the Mixed Mesophytic Forest Region. This region lies mainly on the Appalachian Plateau, west of the Appalachian Mountains. Many of the major species of the Eastern Deciduous Forest grow in mixed stands in the climax forests of the Appalachian Plateau. Some of the characteristic trees in this region include black locust, black walnut, chestnut oak, shagbark hickory, yellow-poplar, American beech, sugar maple, pignut hickory, chestnut, northern red oak, and white oak. About 89 percent of the major forest type group in the county is oak-hickory, and 96.5 percent is privately owned. Most areas are considered fully stocked with stand-size classes being primarily sawtimber or poletimber. About 94 percent of the total volume of sawtimber and poletimber is dominantly hardwoods such as white oak, red oak, yellow-poplar, or beech. Generally, the highest volume of timber for very steep areas, or areas with slopes of more than 35 percent, is on 41 to 50 percent slopes on northwest aspects.

The wood industry of Lincoln County consists mainly of commercial sawmills that produce rough lumber, pallets, crossties, dimension stock, and pulpwood. Cut logs are also frequently trucked to mills in adjacent counties and states.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate determine the kinds of trees that grow on a site. Available water capacity and depth of root zone have a major influence on tree growth. Elevation and aspect are important considerations for woodland interpretations in the mountainous areas of the county.

The section “Detailed Soil Map Units” provides information on suitability and management for the soil map units in Lincoln County. Tables 9, 10a, 10b, 10c, 10d, and 10e show the potential productivity of the soils for wood crops and summarize and rate the soils according to the limitations that affect various aspects of forest management. They can help forest owners or managers plan the use of soils for wood crops.

Forest Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally

favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 10a through 10e, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low,

moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

Lincoln County offers a variety of recreational opportunities. The USDA Natural Resources Conservation Service constructed the Upper Mud River Recreation Area dam in 1996 for flood-control purposes and recreation. The lake covers an area of 330 acres, with 12.7 miles of shoreline, and provides excellent fishing for largemouth bass, bluegill, crappie, channel catfish, and muskellunge. The wildlife management area provides hunting opportunities for a variety of game such as white-tailed deer, turkey, raccoon, grouse, squirrel, rabbit, ducks, and geese. Recreational facilities include a swimming beach area, picnic areas, hiking trails, playgrounds, and a boat dock.

Big Ugly Wildlife Management Area, which is 25 miles south of Hamlin, provides additional hunting opportunities. This area is managed primarily for deer, squirrel, turkey, and grouse but also supports an abundance of fox.

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Casey Shrader, state biologist, Natural Resources Conservation Service, helped to prepare this section.

Wildlife habitat in Lincoln County is best suited to the needs of woodland wildlife species. With 88 percent of the survey area forested, woodland species such as white-tailed deer, wild turkey, gray and fox squirrels, and ruffed grouse are common. Coyote populations within the survey area continue to increase rapidly, and black bear populations are steady or increasing.

Populations of openland wildlife such as dove and meadowlark are rare, and bobwhite quail may not inhabit areas in the county because of the limited acreage of cultivated farmland. Cottontail rabbits may inhabit brushy areas and borders between woodland and open fields. Typically, much of this brushy habitat is in or near surface-mined areas in the southern part of the county. Reclamation of these areas provides opportunities for increased populations and species diversity. Additionally, many formerly cultivated or pastured areas are reverting to brushy vegetation.

Native furbearers and most indigenous nongame species are abundant in all parts of the county. The populations of fox, muskrat, skunk, raccoons, and opossums are large, as are those of groundhogs, small mammals, crows, and songbirds.

Large waterfowl species such as Canada geese and smaller waterfowl such as teal, wood duck, and mallards are in small flocks along the Mud, Guyandotte, and Coal Rivers and their larger tributaries. Water birds such as sandpipers, kingfishers, and great blue herons may appear along streams and waterways throughout the county.

Local rivers, streams, and ponds support a variety of warmwater fish. Common game species include smallmouth bass, largemouth bass, channel catfish, muskie, crappie, bluegill, and other assorted sunfish. Most streams in Lincoln County support a variety of nongame species. Fish and other aquatic populations may be adversely affected by sedimentation and other anthropogenic activities.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, aster, and ragweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, and blackberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are white pine, Virginia pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others 1979; National Research Council 1995; Tiner 1985; U.S. Army Corps of Engineers 1987). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register 2002). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff 2003) and in the “Soil Survey Manual” (Soil Survey Division Staff 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt, Whited, and Pringle 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map unit meets the definition of hydric soils and, in addition, has at least one of the hydric soil indicators. This information can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council 1995; Hurt, Whited, and Pringle 2002).

Hy Holly loam, occasionally flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map unit, in general, does not meet the definition of hydric soils because it does not have one of the hydric soil indicators. A portion of the map unit, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

Or   Orrville loam, occasionally flooded

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 13a and 13b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are

based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction, depth to a water table, ponding, depth to bedrock or a cemented pan, the available water capacity in the upper 40 inches, the content of salts or calcium carbonate, and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 14a and 14b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a fragipan, and flooding affect absorption of the effluent. Stones, boulders, and bedrock interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, and soil reaction. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on

the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock, reaction, and content of lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 15a and 15b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features

indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special

design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders or of organic matter. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 17 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 18 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 18, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In table 18, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 18, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil

properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and

permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 19 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliquivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliquivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory

analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Water Features

Table 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Flooding is the temporary inundation of an area caused by overflowing streams or by runoff from adjacent slopes (fig. 9). Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of

Figure 9.—The frequent flooding along Mud River severely damages crops in low areas.

flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 21 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly

affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1999, 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, superactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each

series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff 2003). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Allegheny Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On high strath terraces and alluvial fans along the larger streams; throughout the county
Parent material: Alluvium
Slope range: 3 to 15 percent
Classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Representative Pedon

Allegheny loam, in a pastured area of Allegheny loam, bedrock substratum, 8 to 15 percent slopes, in Cabell County, West Virginia; about 200 yards southwest of U.S. Route 60 and about 335 yards east of West Virginia Route 60/39; USGS Hurricane topographic quadrangle; lat. 38 degrees 25 minutes 34 seconds N. and long. 82 degrees 06 minutes 06 seconds W.

A—0 to 8 inches; dark grayish brown (10YR 4/2) loam; weak fine and medium granular structure; very friable; many fine and medium roots; moderately acid; clear wavy boundary.
Bt1—8 to 14 inches; yellowish brown (10YR 5/6) loam; weak fine and medium subangular blocky structure; friable; many fine and medium roots; few distinct clay films on faces of peds; moderately acid; clear wavy boundary.
Bt2—14 to 30 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; strongly acid; clear wavy boundary.
BC—30 to 36 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; gradual wavy boundary.
C—36 to 50 inches; strong brown (7.5YR 5/6) sandy loam; massive; friable; extremely acid; clear wavy boundary.
R—50 inches; shale and siltstone bedrock.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Extremely acid to moderately acid throughout
Content of rock fragments: 0 to 10 percent throughout the solum; 10 to 30 percent in the substratum

A horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam, fine sandy loam, silt loam

BA horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, fine sandy loam, silt loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 8
Texture—loam, clay loam, sandy clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, clay loam
Note—mottled in shades of red, gray, or yellow in some pedons

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, clay loam
Note—mottled in shades of red, gray, or yellow in some pedons

Beech Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow or moderate
Landscape position: On footslopes and colluvial fans and in coves; in the eastern and northern parts of the county
Parent material: Mixed colluvium derived from sandstone, shale, and siltstone
Slope range: 15 to 35 percent
Classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Representative Pedon

Beech loam, in an area of Beech loam, 15 to 25 percent slopes, in a mixed hardwood and shortleaf pine forest in Wayne County, West Virginia; about 500 yards east of the junction of Long Branch Road and Butler Branch and about 1,000 yards southeast of the Cabell County line; USGS Winslow topographic quadrangle; lat. 38 degrees 18 minutes 12 seconds N. and long. 82 degrees 19 minutes 38 seconds W.

Oi—0 to 1 inch; slightly decomposed leaf litter, twigs, and pine needles.
A—1 to 7 inches; brown (10YR 4/3) loam; moderate fine and medium granular structure; very friable; many fine and medium roots; 10 percent siltstone and shale channers; strongly acid; abrupt wavy boundary.
BA—7 to 10 inches; yellowish brown (10YR 5/4) channery loam; weak medium subangular blocky structure; friable; many fine and medium roots; 15 percent shale and siltstone channers; strongly acid; clear wavy boundary.
Bt1—10 to 22 inches; yellowish brown (10YR 5/6) channery loam; moderate medium subangular blocky structure; friable; many fine and medium roots; common discontinuous clay films on faces of peds; 20 percent shale and siltstone channers; strongly acid; clear wavy boundary.

Bt2—22 to 36 inches; strong brown (7.5YR 5/6) channery clay loam; common fine and medium light brownish gray (10YR 6/2) redox depletions; moderate medium subangular blocky structure; firm; common fine and medium roots; common to many discontinuous clay films on faces of peds; common fine and medium concretions of iron and manganese; 20 percent shale and siltstone channers; strongly acid; gradual wavy boundary.

Bt3—36 to 45 inches; yellowish brown (10YR 5/6) very channery loam; common fine and medium light brownish gray (10YR 6/2) redox depletions; weak medium and coarse subangular blocky structure; firm; few medium roots; common discontinuous clay films on faces of peds; common fine and medium concretions of iron and manganese; 35 percent shale and siltstone channers; strongly acid; gradual wavy boundary.

BC—45 to 52 inches; yellowish brown (10YR 5/6) very channery loam; many medium light brownish gray (10YR 6/2) redox depletions; weak coarse subangular blocky structure; firm; few medium roots; common fine and medium concretions of iron and manganese; 40 percent shale and siltstone channers; strongly acid; gradual wavy boundary.

C—52 to 65 inches; strong brown (7.5YR 5/6) and light gray (10YR 7/1) extremely channery loam; massive; friable; common concretions of manganese and iron; 60 percent shale and siltstone channers; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid throughout
Content of rock fragments: 10 to 30 percent in the A and BA horizons; 15 to 60 percent in the Bt, BC, and C horizons; averages 15 to 35 percent in the control section

A horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—3 or 4
Texture—loam, silt loam

BA horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, clay loam
Note—redoximorphic or relict redoximorphic features in shades of brown, olive, or gray in most pedons

BC horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—loam, clay loam
Note—redoximorphic or relict redoximorphic features in shades of brown, olive, or gray in most pedons

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture—loam, silt loam, clay loam

Berks Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On summits of ridges and the upper side slopes of hills
Parent material: Shale and siltstone residuum
Slope range: 35 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Berks very channery loam, in a wooded area of Berks-Shelocta association, very steep, extremely stony, in Boone County, West Virginia; 0.36 mile west of the confluence of Low Gap Creek and Spruce Fork of Little Coal River; 0.2 mile southwest of Low Gap, West Virginia; USGS Madison topographic quadrangle; lat. 38 degrees 01 minute 44 seconds N. and long. 81 degrees 50 minutes 24 seconds W.

Oe—0 to 1 inch; moderately decomposed hardwood leaf litter.
A—1 to 3 inches; dark brown (10YR 3/3) very channery loam; weak fine granular structure; very friable; many fine roots; 40 percent siltstone channers; extremely acid; abrupt smooth boundary.
BA—3 to 7 inches; yellowish brown (10YR 5/6) very channery loam; weak fine and medium subangular blocky structure; friable; common fine and very fine roots; 45 percent siltstone channers; extremely acid; clear wavy boundary.
Bw—7 to 17 inches; yellowish brown (10YR 5/6) extremely channery silt loam; weak medium subangular blocky structure; friable; common very fine roots; 60 percent siltstone channers; very strongly acid; clear wavy boundary.
BC—17 to 24 inches; yellowish brown (10YR 5/6) extremely channery silt loam; weak medium subangular blocky structure; firm; few very fine roots; 75 percent siltstone channers; very strongly acid; abrupt wavy boundary.
R—24 inches; hard, gray and brown siltstone bedrock.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to slightly acid throughout
Content of rock fragments: 20 to 50 percent in the A and BA horizons; 15 to 80 percent in the B horizon; 35 to 90 percent in the C horizon

A horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—loam, silt loam

BA horizon:
Hue—7.5YR to 2.5Y

Value—4 to 6
Chroma—3 to 8
Texture—loam, silt loam

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, silt loam, silty clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, silt loam, silty clay loam

C horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, silt loam

Cedarcreek Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On nearly level or gently sloping benches and very steep outslopes; in revegetated areas that were formerly surface-mined for coal
Parent material: Acid regolith from the surface mining of coal
Slope range: 3 to 80 percent
Classification: Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents

Representative Pedon

Cedarcreek very channery loam, in a wooded area of Cedarcreek-Rock outcrop complex, very steep, extremely stony, in Boone County, West Virginia; about 3.2 miles northeast of U.S. Route 119 at the Little Hewitt Creek exit; USGS Julian topographic quadrangle; lat. 38 degrees 11 minutes 24 seconds N. and long. 81 degrees 49 minutes 48 seconds W.

A—0 to 3 inches; brown (10YR 4/3) very channery loam; moderate fine granular structure; friable; many fine and medium roots; 50 percent channers and stones (60 percent sandstone and 40 percent siltstone); strongly acid; clear wavy boundary.
C1—3 to 20 inches; mixed yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) very channery loam; few yellow, brown, and gray lithochromic mottles; massive; friable; few fine and very fine roots; about 40 percent channers and stones (40 percent sandstone, 55 percent siltstone, and 5 percent coal); very strongly acid; gradual wavy boundary.
C2—20 to 38 inches; mixed yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) very channery loam; few yellow, gray, and brown lithochromic mottles; massive; friable; about 50 percent channers and stones (40 percent sandstone, 55 percent siltstone, and 5 percent coal); very strongly acid; gradual wavy boundary.
C3—38 to 65 inches; mixed yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) very channery loam; few brown and gray lithochromic mottles; massive;

friable; about 50 percent channers and stones (60 percent sandstone, 35 percent siltstone, and 5 percent coal); very strongly acid.

Range in Characteristics

Thickness of the solum: Less than 20 inches
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to strongly acid throughout
Content of rock fragments: 35 to 70 percent throughout

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 5
Chroma—1 to 6
Texture—loam, silt loam, sandy loam

C horizon:
Hue—7.5YR to 2.5Y
Value—2 to 6
Chroma—3 to 8
Texture—loam, silt loam, sandy loam

Chagrin Series

Depth class: Very deep (fig. 10)
Drainage class: Well drained
Permeability: Moderate
Landscape position: On low flood plains along small streams and intermittent drainageways; throughout the county
Parent material: Local alluvium derived from soils underlain by shale, sandstone, or siltstone
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Chagrin loam, frequently flooded, on a flood plain along Mud River, near Jenks, West Virginia; 1.6 miles southeast of the Myra Post Office, 0.8 mile north of Fez Creek, and 400 feet northeast of the

Figure 10.—Representative profile of the Chagrin series. The surface layer is about 9 inches thick and is rich in plant nutrients, such as nitrogen. The loamy subsoil has high available water capacity.

confluence of Mud River and Big Laurel Creek; USGS Hager topographic quadrangle; lat. 38 degrees 11 minutes 53 seconds N. and long. 82 degrees 06 minutes 14 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) loam; weak fine and medium granular structure; very friable; many fine and very fine roots; moderately acid; clear smooth boundary.
AB—7 to 12 inches; dark yellowish brown (10YR 4/4) loam; weak fine and medium subangular blocky structure; friable; common fine and very fine roots; slightly acid; gradual smooth boundary.
Bw1—12 to 23 inches; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; moderately acid; gradual smooth boundary.
Bw2—23 to 39 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; 2 percent sandstone and siltstone gravel; moderately acid; gradual smooth boundary.
BC—39 to 56 inches; yellowish brown (10YR 5/4) silt loam; weak coarse subangular blocky structure; friable; moderately acid; clear smooth boundary.
C—56 to 65 inches; yellowish brown (10YR 5/6) silt loam; massive; very friable; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to more than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to neutral throughout
Content of rock fragments: 0 to 10 percent throughout

A horizon:
Hue—7.5YR or 10YR
Value—4
Chroma—3 or 4
Texture—loam, silt loam

BA or AB horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—loam, silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam, silty clay loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam, silty clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam, fine sandy loam

Cloverlick Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On the middle and lower side slopes of hills, on footslopes, and in north-facing coves
Parent material: Colluvium derived from sandstone, siltstone, and shale
Slope range: 35 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Cloverlick loam, in a wooded area of Highsplint-Matewan-Cloverlick association, very steep, extremely stony, on a north-facing lower backslope; 1.25 miles west-southwest of Woodville, 0.75 mile south-southeast of Alkol, and 250 feet south of Bear Branch of Horse Creek; USGS Griffithsville topographic quadrangle; lat. 38 degrees 09 minutes 18 seconds N. and long. 81 degrees 54 minutes 24 seconds W.

Oi—0 to 2 inches; slightly decomposed leaf litter.
A—2 to 9 inches; very dark grayish brown (10YR 3/2) loam, brown (10YR 5/3) dry; weak fine granular structure; very friable; many fine and medium roots; 10 percent sandstone and siltstone channers; slightly acid; clear smooth boundary.
BA—9 to 13 inches; dark yellowish brown (10YR 4/4) and dark brown (10YR 3/3) channery loam; weak fine and medium subangular blocky structure; very friable; many fine and medium roots; 20 percent sandstone and siltstone channers; moderately acid; gradual smooth boundary.
Bw1—13 to 29 inches; yellowish brown (10YR 5/4) very channery loam; weak medium subangular blocky structure; friable; common fine and medium roots; 35 percent sandstone and siltstone channers; moderately acid; gradual smooth boundary.
Bw2—29 to 45 inches; brown (10YR 5/3) very channery loam; weak medium subangular blocky structure; friable; few fine and medium roots; 50 percent sandstone and siltstone channers; very strongly acid; gradual smooth boundary.
Bw3—45 to 50 inches; brown (10YR 5/3) extremely channery silt loam; weak medium subangular blocky structure; friable; few fine roots; 60 percent sandstone and siltstone channers; very strongly acid; clear smooth boundary.
C—50 to 65 inches; yellowish brown (10YR 5/4) extremely channery loam; massive; very friable; 70 percent sandstone and siltstone channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the A horizon; very strongly acid to moderately acid in the BA and Bw horizons; very strongly acid or strongly acid in the C horizon
Content of rock fragments: 10 to 40 percent in the A and BA horizons; 35 to 60 percent in the Bw horizon; 40 to 75 percent in the C horizon

A horizon:
Hue—10YR
Value—3; 4 or 5 dry
Chroma—2 or 3
Texture—loam, silt loam

BA horizon:
Hue—10YR
Value—3 to 6
Chroma—3 or 4
Texture—loam, silt loam

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, silt loam

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam

Cotaco Series

Depth class: Very deep
Drainage class: Moderately well drained or somewhat poorly drained
Permeability: Moderate
Landscape position: On low terraces along the major streams; throughout the county
Parent material: Alluvium derived from limy and acid soils on uplands
Slope range: 0 to 15 percent
Classification: Fine-loamy, mixed, semiactive, mesic Aquic Hapludults

Representative Pedon

Cotaco loam, in a pastured area of Cotaco loam, 3 to 8 percent slopes, in Wayne County, West Virginia; about 3.9 miles south of the confluence of Buffalo Creek and Twelvepole Creek, 0.8 mile northwest of Mills Chapel, and about 500 feet northeast of Buffalo Creek; USGS Burnaugh topographic quadrangle; lat. 38 degrees 17 minutes 53 seconds N. and long. 82 degrees 30 minutes 32 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3 and 5/3) loam; moderate fine and medium granular structure; very friable; many fine and medium roots; mildly alkaline; abrupt smooth boundary.

BA—8 to 12 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; neutral; clear wavy boundary.

Bt1—12 to 17 inches; yellowish brown (10YR 5/4) loam; common pale brown (10YR 6/3) and yellowish brown (10YR 5/6) redox accumulations; weak medium subangular blocky structure; friable; common fine and medium roots; common discontinuous clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—17 to 28 inches; brownish yellow (10YR 6/6) clay loam; many medium light gray (10YR 7/2) redox depletions; weak medium subangular blocky structure; friable; few fine roots; common concretions of manganese; common discontinuous clay films on faces of peds; strongly acid; gradual wavy boundary.

BC—28 to 39 inches; brownish yellow (10YR 6/6) and light gray (10YR 7/2) clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; friable; few fine roots; common manganese coatings on faces of peds; strongly acid; gradual wavy boundary.

C1—39 to 50 inches; brownish yellow (10YR 6/6) and light gray (10YR 7/2) loam; massive; friable; 5 percent siltstone and shale fragments; strongly acid; gradual wavy boundary.

C2—50 to 65 inches; brownish yellow (10YR 6/6) and light gray (10YR 7/2) channery loam; massive; friable; many concretions of manganese; 15 percent siltstone and shale fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to neutral throughout
Content of rock fragments: 0 to 30 percent in the solum; 0 to 50 percent in the substratum
Note: Redox depletions in the lower part of the argillic horizon in most pedons

A horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—loam, silt loam
BA horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam
Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loam, silt loam, sandy clay loam, clay loam

BC horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—loam, silt loam, sandy clay loam, clay loam

C horizon:
Hue—7.5YR to 2.5Y or is neutral
Value—4 to 8
Chroma—0 to 8
Texture—loam, silt loam, sandy clay loam, clay loam

Dormont Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderately slow or slow
Landscape position: On the upper side slopes of hills and on narrow summits and shoulders of ridges; in the eastern part of the county
Parent material: Interbedded siltstone and shale residuum
Slope range: 15 to 35 percent
Classification: Fine-loamy, mixed, superactive, mesic Oxyaquic Hapludalfs

Representative Pedon

Dormont silt loam, in a meadow in Dormont-Latham complex, 15 to 25 percent slopes, in Wayne County, West Virginia; about 130 yards southeast of the dirt road on Napier Ridge and about 1.7 miles southwest of East Lynn Dam; USGS Wayne

topographic quadrangle; lat. 38 degrees 07 minutes 33 seconds N. and long. 82 degrees 24 minutes 18 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; very friable; many fine and medium roots; 10 percent siltstone channers; strongly acid; abrupt wavy boundary.

BA—7 to 11 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine and medium roots; 10 percent siltstone channers; strongly acid; clear wavy boundary.

Bt1—11 to 23 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct discontinuous clay films on faces of peds; 10 percent siltstone and shale channers; strongly acid; gradual wavy boundary.

Bt2—23 to 30 inches; strong brown (7.5YR 5/6) channery silty clay loam; common fine prominent light gray (2.5Y 7/2) redox depletions; weak medium subangular blocky structure; friable; common fine and medium roots; common distinct discontinuous clay films on faces of peds; 15 percent siltstone channers; strongly acid; gradual wavy boundary.

Bt3—30 to 40 inches; strong brown (7.5YR 5/6) channery silty clay loam; many fine and medium prominent light gray (2.5Y 7/2) redox depletions; weak fine and medium subangular blocky structure; firm; few fine roots; common distinct discontinuous clay and silt films on faces of peds; common fine and medium concretions of iron and manganese; 20 percent siltstone channers; strongly acid; gradual wavy boundary.

C—40 to 54 inches; strong brown (7.5YR 5/6) very channery silty clay loam; many coarse prominent light gray (10YR 7/2) redox depletions; massive; firm; common fine and medium concretions of iron and manganese; 40 percent siltstone channers; strongly acid; abrupt wavy boundary.

Cr—54 to 59 inches; interbedded soft siltstone and shale bedrock.

Range in Characteristics

Thickness of the solum: 36 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid to slightly acid in the A and BA horizons; strongly acid to slightly alkaline in the Bt and C horizons
Content of rock fragments: 0 to 15 percent in the A horizon; 5 to 15 percent in the upper part of the B horizon; 5 to 30 percent in the lower part of the B horizon; 5 to 50 percent in the C horizon

A horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—3 or 4
Texture—silt loam

BA horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—silt loam, silty clay loam

Upper part of the Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—silt loam, silty clay loam

Lower part of the Bt horizon:
Hue—7.5YR to 5Y or is neutral
Value—4 to 6
Chroma—0 to 6
Texture—silty clay loam, silty clay, clay

C horizon:
Hue—7.5Y to 5Y or is neutral
Value—4 to 6
Chroma—0 to 6
Texture—silt loam, silty clay loam, silty clay, clay

Fiveblock Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate or moderately rapid
Landscape position: On nearly level or gently sloping benches, strongly sloping to very steep side slopes of hills, and very steep outslopes; in revegetated areas that were formerly surface mined for coal
Parent material: Nonacid regolith from the surface mining of coal
Slope range: 0 to 65 percent
Classification: Loamy-skeletal, mixed, semiactive, nonacid, mesic Typic Udorthents

Representative Pedon

Fiveblock channery loam, in an area of Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony, on a hillside in a reclaimed area previously used for surface mining; 0.75 mile north of Kiah Creek and 0.3 mile southeast of Frances Creek; USGS Trace topographic quadrangle; lat. 37 degrees 59 minutes 52 seconds N. and long. 83 degrees 12 minutes 06 seconds W.

A—0 to 4 inches; yellowish brown (10YR 5/4) channery loam; weak fine granular structure; very friable; common fine roots; 30 percent sandstone channers (2 millimeters to 0.75 inch); slightly alkaline; gradual smooth boundary.
C1—4 to 25 inches; yellowish brown (10YR 5/6) very channery sandy loam; massive; very friable; few fine roots; 40 percent sandstone channers (2 millimeters to 3 inches); neutral; clear smooth boundary.
C2—25 to 50 inches; yellowish brown (10YR 5/6) extremely flaggy sandy loam; massive; very friable; 60 percent sandstone flagstones, channers, and stones; 10 percent siltstone channers (2 millimeters to 3 inches); moderately acid; gradual smooth boundary.
C3—50 to 65 inches; yellowish brown (10YR 5/6) very flaggy sandy loam; massive; very friable; 45 percent sandstone flagstones, channers, and stones; 5 percent shale channers (2 millimeters to 3 inches); moderately acid.

Range in Characteristics

Thickness of the solum: Less than 20 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to slightly alkaline throughout
Content of rock fragments: 15 to 45 percent in the A horizon; 20 to 70 percent in the C horizon

A horizon:
Hue—10YR
Value—4 or 5

Chroma—3 or 4
Texture of the fine-earth fraction—sandy loam, loam

C horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—3 to 8
Texture of the fine-earth fraction—sandy loam, loamy sand

Gilpin Series

Depth class: Moderately deep (fig. 11)
Drainage class: Well drained
Permeability: Moderate
Landscape position: On summits and shoulders of ridges, on benches, and on side slopes of hills; throughout the county
Parent material: Derived from interbedded shale, siltstone, and fine grained sandstone
Slope range: 8 to 65 percent
Classification: Fine-loamy, mixed, active, mesic Typic Hapludults

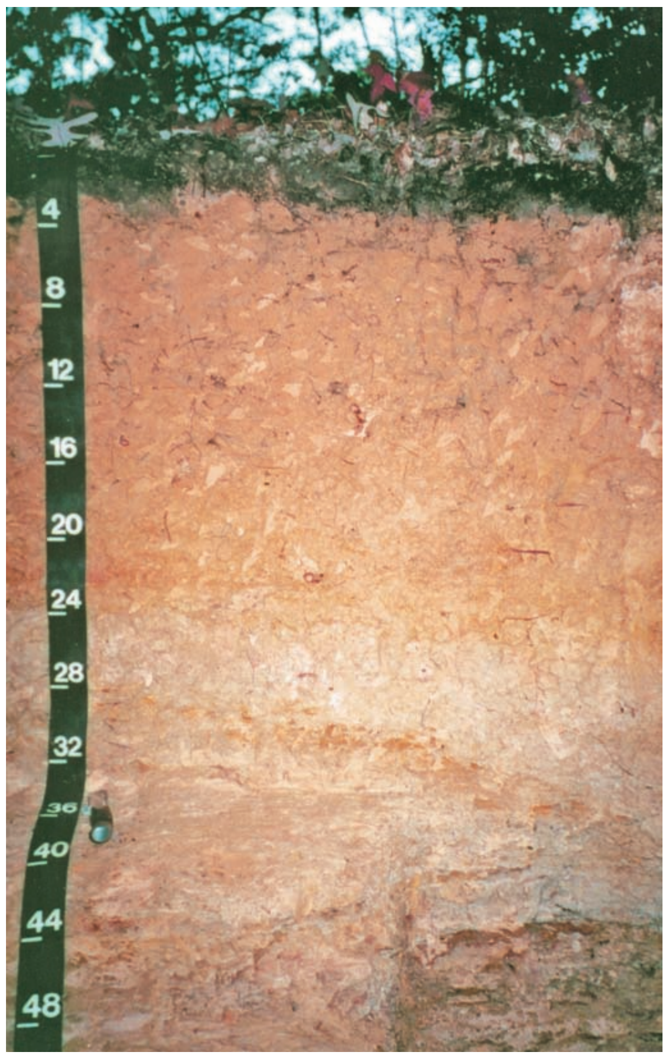

Figure 11.—Representative profile of the Gilpin series. Interbedded, rippable soft siltstone and shale bedrock is at a depth of 24 inches. Gilpin soils make up the most extensive soil series in the county.

Representative Pedon

Gilpin silt loam, in an area of Gilpin-Upshur complex, 25 to 35 percent slopes; on a forested ridge between Joe's Creek and Trace Fork of Mud River; USGS Garretts Bend topographic quadrangle; lat. 38 degrees 16 minutes 33 seconds N. and long. 81 degrees 55 minutes 14 seconds W.

Oi—0 to 2 inches; slightly decomposed leaf litter.
Oe—2 to 3 inches; very dark gray (10YR 3/1) fibrous mat of moderately decomposed leaf litter; abrupt smooth boundary.
A—3 to 6 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; many very fine,

fine, medium, and coarse roots; 5 percent shale and siltstone channers; strongly acid; clear wavy boundary.

BA—6 to 9 inches; yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; friable; many fine, medium, and coarse roots; 15 percent shale and siltstone channers; strongly acid; clear wavy boundary.

Bt1—9 to 16 inches; yellowish brown (10YR 5/6) channery silt loam; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; few faint discontinuous clay films on faces of peds; 20 percent shale and siltstone channers; very strongly acid; clear wavy boundary.

Bt2—16 to 22 inches; brown (7.5YR 5/4) channery silty clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; common faint discontinuous clay films on faces of peds; 20 percent shale and siltstone channers; very strongly acid; gradual boundary.

BC—22 to 28 inches; brown (7.5YR 5/4) channery silty clay loam; weak medium subangular blocky structure; firm; few fine roots; 30 percent shale and siltstone channers; very strongly acid; abrupt wavy boundary.

Cr—28 to 33 inches; interbedded soft shale, siltstone, and fine grained sandstone.

R—33 inches; hard, fine grained sandstone.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid throughout
Content of rock fragments: 5 to 40 percent in the solum; 30 to 90 percent in the substratum

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 5
Texture—loam, silt loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam, clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam, clay loam

C horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture—loam, silt loam

Grigsby Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On low flood plains along the major streams; throughout the county
Parent material: Alluvium
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Grigsby fine sandy loam, frequently flooded, on a flood plain along Big Ugly Creek; 0.7 mile east of the intersection of County Routes 15 and 7, about 0.4 mile northeast of Green Shoals Mountain, and 0.2 mile west of Tucker Fork of Big Ugly Creek; USGS Big Creek topographic quadrangle; lat. 38 degrees 02 minutes 57 seconds N. and long. 82 degrees 03 minutes 25 seconds W.

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate fine and medium granular structure; friable; common very fine and fine roots; neutral; clear wavy boundary.
AB—10 to 14 inches; dark yellowish brown (10YR 4/4 and 4/6) fine sandy loam; moderate medium granular structure; very friable; few fine roots; neutral; clear wavy boundary.
Bw1—14 to 29 inches; dark yellowish brown (10YR 4/6) fine sandy loam; moderate medium subangular blocky structure; very friable; slightly acid; gradual wavy boundary.
Bw2—29 to 39 inches; dark yellowish brown (10YR 4/6) fine sandy loam; weak medium subangular blocky structure; very friable; slightly acid; clear wavy boundary.
BC—39 to 45 inches; dark yellowish brown (10YR 4/6) sandy loam; weak fine and medium subangular blocky structure; very friable; slightly acid; abrupt smooth boundary.
C1—45 to 49 inches; dark yellowish brown (10YR 4/6) loamy sand; loose, single grain; very friable; slightly acid; abrupt smooth boundary.
C2—49 to 65 inches; brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), and very pale brown (10YR 7/3) gravelly loamy sand; loose, single grain; very friable; 20 percent sandstone gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: Slightly acid or neutral in the A, AB, Bw, and BC horizons; moderately acid to neutral in the C horizon
Content of rock fragments: 0 to 15 percent in the solum; 0 to 25 percent in the substratum

A horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—fine sandy loam, sandy loam, loam

AB horizons:
Hue—10YR
Value—4 to 6

Chroma—3 or 4
Texture—fine sandy loam, sandy loam, loam

Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, loam

BC horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—sandy loam, loam

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 8
Chroma—3 to 8
Texture—sandy loam, loamy sand

Guyan Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landscape position: On high flood plains and low stream terraces along the major rivers and streams; throughout the northern part of the county
Parent material: Local alluvium derived from soils underlain by sandstone, siltstone, and shale
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, semiactive, mesic Aeric Endoaquults

Representative Pedon

Guyan silt loam, rarely flooded, on a high flood plain along the Lower Mud River; 1.2 miles northeast of Portersville, West Virginia; 0.2 mile southeast of the Lincoln-Cabell County line and 300 feet east of County Route 1; USGS Hamlin topographic quadrangle; lat. 38 degrees 20 minutes 41 seconds N. and 82 degrees 06 minutes 45 seconds W.

A—0 to 5 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.
BA—5 to 10 inches; yellowish brown (10YR 5/4) and brown (10YR 5/3) silt loam; few fine distinct light brownish gray (2.5Y 6/2) iron depletions; weak medium subangular blocky structure parting to weak fine granular; very friable; common fine roots; strongly acid; clear smooth boundary.
Bt—10 to 16 inches; yellowish brown (10YR 5/6) silt loam; common medium prominent light brownish gray (2.5Y 6/2) iron depletions; moderate medium subangular blocky structure; very friable; few distinct clay films on faces of peds and along root channels; few fine roots; very strongly acid; clear smooth boundary.
Btg1—16 to 35 inches; light gray (2.5Y 7/2) and brownish yellow (10YR 6/6) silty clay loam; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; few fine concretions of manganese; very strongly acid; gradual smooth boundary.

Btg2—35 to 50 inches; light gray (2.5Y 7/1) silty clay loam; common medium prominent brownish yellow (10YR 6/6) iron concentrations in the matrix; moderate medium subangular blocky structure; friable; common distinct clay films on faces of peds; common fine concretions of manganese; very strongly acid; clear smooth boundary.

Cg—50 to 65 inches; light gray (2.5Y 7/1) silty clay loam; few medium prominent brownish yellow (10YR 6/6) iron concentrations in the matrix; massive; friable; few fine concretions of manganese; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to slightly acid in the A and BA horizons; very strongly acid or strongly acid in the Bt, BC, and C horizons
Content of rock fragments: 0 to 10 percent throughout
Note: Redox depletions and concentrations throughout the argillic horizon in most pedons

A horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—loam, silt loam

BA horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam, silt loam

Bt or Btg horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—1 to 6
Texture—loam, silt loam, silty clay loam

BC horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—2 to 6
Texture—loam, silt loam, silty clay loam

Cg horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—1 to 8
Texture—loam, silt loam, silty clay loam

Guyandotte Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On the middle and lower side slopes of hills and in north-facing coves
Parent material: Colluvium derived from sandstone, siltstone, and shales

Slope range: 35 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Humic Dystrudepts

Representative Pedon

Guyandotte channery loam, in a wooded area of Matewan-Pineville-Guyandotte association, very steep, extremely stony, in Wayne County, West Virginia; about 0.4 mile west of the confluence of Turkey Creek and the West Fork of Twelvepole Creek, about 1.0 mile southeast of the confluence of Spruce Fork and Right Fork, and 140 yards west and downslope from the Beech Ridge Trail; USGS Wilsondale topographic quadrangle; lat. 37 degrees 57 minutes 20 seconds N. and long. 82 degrees 20 minutes 48 seconds W.

Oi—0 to 1 inch; slightly decomposed leaf litter.
A1—1 to 7 inches; very dark grayish brown (10YR 3/2) channery loam, dark grayish brown (10YR 4/2) dry; moderate fine and very fine granular structure; very friable; many fine and medium roots; 20 percent sandstone channers; slightly acid; abrupt wavy boundary.
A2—7 to 14 inches; dark brown (10YR 3/3) channery loam, grayish brown (10YR 5/2) dry; weak medium and coarse granular structure; very friable; many fine and medium roots; 20 percent sandstone channers; slightly acid; clear wavy boundary.
BA—14 to 22 inches; brown (10YR 4/3) channery loam; weak medium subangular blocky structure parting to weak medium and coarse granular; friable; many medium roots; 25 percent sandstone channers; moderately acid; gradual wavy boundary.
Bw1—22 to 31 inches; dark yellowish brown (10YR 4/4) very channery loam; weak medium subangular blocky structure; friable; many medium and coarse roots; few distinct clay films or silt films on faces of peds; 45 percent sandstone channers; moderately acid; gradual wavy boundary.
Bw2—31 to 54 inches; yellowish brown (10YR 5/4) very channery loam; weak medium and coarse subangular blocky structure; friable; common medium roots; few distinct clay films or silt films on faces of peds; 55 percent sandstone channers; moderately acid; gradual wavy boundary.
C—54 to 66 inches; yellowish brown (10YR 5/4) extremely channery loam; massive; firm; few medium roots; 70 percent sandstone channers; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the A horizon; very strongly acid to moderately acid in the BA and Bw horizons; very strongly acid or strongly acid in the C horizon
Content of rock fragments: 10 to 40 percent in the A and BA horizons; 35 to 60 percent in the Bw horizon; 40 to 75 percent in the C horizon

A horizon:
Hue—10YR
Value—3; 4 or 5 dry
Chroma—2 or 3
Texture—loam, silt loam

BA horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—loam, silt loam

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, silt loam

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam

Hazleton Series

Depth class: Deep
Drainage class: Well drained
Permeability: Rapid or moderately rapid
Landscape position: Very steep side slopes of hills; throughout the southern half of the county
Parent material: Sandstone residuum
Slope range: 35 to 75 percent
Classification: Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts

Representative Pedon

Hazleton sandy loam, in a wooded area of Sharpcrest-Hazleton complex, 35 to 75 percent slopes, extremely bouldery, on a very steep side slope; 0.3 mile northwest of Midkiff and 0.1 mile west-southwest of Midkiff Elementary School; USGS Branchland topographic quadrangle; lat. 38 degrees 10 minutes 46 seconds N. and long. 82 degrees 10 minutes 59 seconds W.

Oi—0 to 4 inches; slightly decomposed leaf litter.
Oe—4 to 5 inches; moderately decomposed organic matter.
A—5 to 6 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many very fine and fine roots; 5 percent sandstone channers; very strongly acid; abrupt wavy boundary.
AB—6 to 9 inches; brown (10YR 4/3) sandy loam; weak fine subangular blocky structure; very friable; many fine and medium roots; 10 percent sandstone channers; strongly acid; clear wavy boundary.
Bw1—9 to 17 inches; yellowish brown (10YR 5/4) channery sandy loam; weak moderate subangular blocky structure; very friable; many fine, medium, and coarse roots; 15 percent sandstone channers; strongly acid; clear wavy boundary.
Bw2—17 to 27 inches; yellowish brown (10YR 5/6) channery sandy loam; weak moderate subangular blocky structure; friable; many fine, medium, and coarse roots; 20 percent sandstone channers; strongly acid; clear wavy boundary.
Bw3—27 to 45 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak coarse subangular blocky structure; friable; common medium and coarse roots; 50 percent sandstone channers; strongly acid; clear wavy boundary.
C—45 to 50 inches; yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) extremely channery sandy loam; massive; friable; 60 percent sandstone channers; extremely acid; abrupt smooth boundary.
R—50 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: 40 to 60 inches
Reaction: Strongly acid to extremely acid
Content of rock fragments: 10 to 20 percent in the A and BA horizons; 15 to 60 percent in the Bw and BC horizons; 50 to 70 percent in the C horizon

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 4
Texture—fine sandy loam, sandy loam, loam

BA or AB horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, loam

Bw horizon:
Hue—10YR
Value—3 to 6
Chroma—3 to 8
Texture—sandy loam, loam, loamy sand

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture—sandy loam, loam, loamy sand

C horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, loamy sand

Highsplint Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: Middle to lower side slopes of hills, footslopes, benches, colluvial fans, and south-facing coves
Parent material: Mixed colluvium derived from Pennsylvanian clastics
Slope range: 15 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Highsplint loam, in a wooded area of Highsplint-Matewan-Cloverlick association, very steep, extremely stony; 1.6 miles northeast of Leet, 0.35 mile east of Durg Frye Hollow, and 0.15 mile southwest of the Back Fork of Laurel Creek; USGS Big Creek topographic quadrangle; lat. 38 degrees 05 minutes 06 seconds N. and long. 82 degrees 03 minutes 16 seconds W.

Oi—0 to 2 inches; slightly decomposed forest litter.

A—2 to 5 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine and medium roots; 12 percent sandstone channers; very strongly acid; clear smooth boundary.

BA—5 to 11 inches; yellowish brown (10YR 5/6) channery loam; weak medium subangular blocky structure; friable; many fine and medium and few coarse roots; 25 percent sandstone and siltstone channers; strongly acid; gradual smooth boundary.

Bw1—11 to 33 inches; yellowish brown (10YR 5/6) very channery loam; moderate medium subangular blocky structure; friable; common fine and medium roots; 40 percent sandstone and siltstone channers; very strongly acid; gradual smooth boundary.

Bw2—33 to 50 inches; yellowish brown (10YR 5/6) very channery loam; moderate medium subangular blocky structure; friable; few fine roots; 50 percent sandstone and siltstone channers; very strongly acid; gradual smooth boundary.

C—50 to 65 inches; yellowish brown (10YR 5/6) extremely channery fine sandy loam; few fine distinct strong brown (7.5YR 5/6) lithochromic mottles; massive; very friable; 60 percent sandstone channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches

Depth to bedrock: More than 60 inches

Reaction: Very strongly acid to moderately acid in the A and BA horizons; very strongly acid or strongly acid in the Bw and C horizons

Content of rock fragments: 5 to 30 percent in the A and BA horizons; 35 to 55 percent in the Bw horizon; 50 to 75 percent in the C horizon

A horizon:

Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam

BA horizon:

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, silt loam

Bw horizon:

Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—loam, silt loam

BC horizon (if it occurs):

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—loam, silt loam

C horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, loam

Holly Series

Depth class: Very deep (fig. 12)
Drainage class: Poorly drained
Permeability: Moderate or moderately slow
Landscape position: On nearly level low flood plains along streams and intermittent drainageways; throughout the county
Parent material: Recent loamy alluvium
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

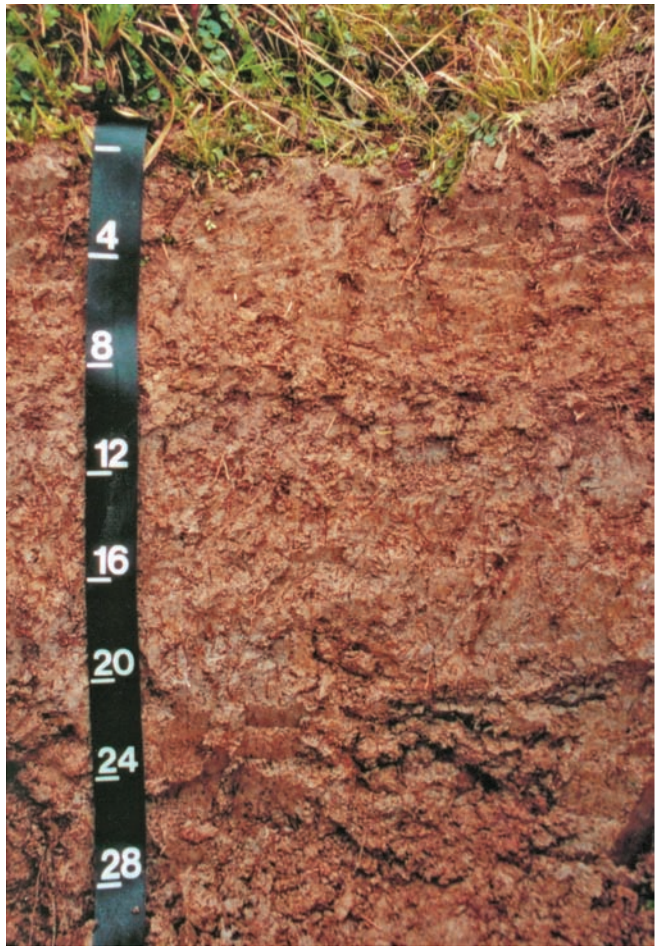

Figure 12.—Representative profile of the Holly series. This hydric soil has a seasonal high water table that extends to the surface and is evidenced by the depleted matrices and the iron and manganese concentrations throughout. Depth is marked in inches.

Representative Pedon

Holly loam, occasionally flooded; 1.0 mile west of Goldsberry Cemetery; 0.5 mile south-southwest of Sias, West Virginia; 0.15 mile north-northeast of the confluence of First Fork and Big Creek; USGS Hager topographic quadrangle; lat. 38 degrees 10 minutes 42 seconds N. and long. 82 degrees 05 minutes 31 seconds W.

A—0 to 6 inches; gray (10YR 5/1) loam; weak fine granular structure; very friable; many very fine roots; common fine and medium prominent strong brown (7.5YR 4/6) oxidized rhizospheres; moderately acid; abrupt smooth boundary.

Bg1—6 to 20 inches; gray (10YR 6/1) silt loam; weak medium subangular blocky structure; very friable; common very fine roots; common fine prominent strong brown (7.5YR 4/6) oxidized rhizospheres; slightly acid; clear smooth boundary.

Bg2—20 to 35 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; friable; few very fine roots; common fine prominent strong brown (7.5YR 5/6) iron accumulations; slightly acid; gradual smooth boundary.

Cg1—35 to 49 inches; gray (10YR 6/1) silt loam; massive; friable; common fine and medium prominent strong brown (7.5YR 4/6) iron accumulations; neutral; gradual smooth boundary.

Cg2—49 to 65 inches; gray (10YR 6/1) and yellowish brown (10YR 5/6) loam; massive; very friable; common fine and medium concretions of iron and manganese; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to neutral throughout the A and Bg horizons; moderately acid to slightly alkaline in the Cg horizon
Content of rock fragments: 0 to 10 percent throughout

A horizon:
Hue—10YR
Value—4 to 6
Chroma—1 or 2
Texture—loam, silt loam

Bg horizon:
Hue—10YR to 5Y or is neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, silty clay loam, sandy loam

Cg horizon:
Hue—10YR to 5Y or is neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, sandy loam

Kanawha Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On high flood plains and low terraces along the major streams and rivers; throughout the county
Parent material: Alluvium derived from interbedded shale, siltstone, and sandstone
Slope range: 0 to 8 percent
Classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Representative Pedon

Kanawha silt loam, 0 to 3 percent slopes, protected; about 0.75 mile southeast of the confluence of Hamilton Creek and Guyandotte River, 0.26 mile northwest of Gill, West Virginia, and 100 feet south of County Route 10/3; USGS Ranger topographic quadrangle; lat. 38 degrees 05 minutes 04 seconds N. and long. 82 degrees 07 minutes 45 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; friable; many fine and very fine roots; 2 percent sandstone gravel; moderately acid; clear smooth boundary.
BA—6 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; common fine and very fine roots; strongly acid; clear smooth boundary.
Bt1—10 to 28 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct clay films on faces of peds; moderately acid; gradual smooth boundary.
Bt2—28 to 58 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

BC—58 to 66 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few distinct clay films on faces of peds; moderately acid; gradual smooth boundary.
C—66 to 72 inches; yellowish brown (10YR 5/6) loam; massive; very friable; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid or moderately acid in the A and BA horizons; moderately acid to neutral in the Bt, BC, and C horizons
Content of rock fragments: 0 to 10 percent in the solum; 0 to 20 percent in the substratum

A horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—fine sandy loam, loam, silt loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—loam, silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—loam, silt loam, clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—loam, silt loam, clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam

Kaymine Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On nearly level or gently sloping benches, strongly sloping to very steep side slopes of hills, and very steep outslopes; in revegetated areas that were formerly surface-mined for coal
Parent material: Nonacid regolith from the surface mining of coal
Slope range: 0 to 65 percent
Classification: Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents

Representative Pedon

Kaymine channery loam, in an area of Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony; on a hillside in a reclaimed area previously used for surface mining; 0.75 mile northeast of the intersection of the Logan-Mingo-Lincoln County lines and 0.7 mile west-northwest of the Rockhouse Fork of Big Harts Creek; USGS Trace topographic quadrangle; lat. 37 degrees 59 minutes 00 seconds N. and long. 82 degrees 10 minutes 56 seconds W.

A—0 to 3 inches; grayish brown (10YR 5/2) channery loam; weak fine granular structure; very friable; common fine roots; 20 percent siltstone channers; moderately alkaline; clear smooth boundary.

C1—3 to 23 inches; gray (10YR 6/1) very channery silt loam; common distinct yellow (10YR 7/6) and reddish brown (5YR 4/4) lithochromic mottles; massive; very friable; few fine roots; 45 percent sandstone and siltstone channers (55 percent sandstone and 45 percent siltstone); moderately alkaline; gradual smooth boundary.

C2—23 to 41 inches; gray (10YR 5/1) extremely channery loam; common distinct yellow (10YR 7/6) lithochromic mottles; massive; very friable; 60 percent sandstone, siltstone, and shale channers (60 percent siltstone, 30 percent sandstone, and 10 percent shale); neutral; gradual smooth boundary.

C3—41 to 65 inches; gray (10YR 6/1) extremely channery loam; common distinct yellow (10YR 7/6) and brown (10YR 5/3) lithochromic mottles; massive; very friable; 65 percent sandstone, siltstone, and shale channers (55 percent sandstone, 30 percent siltstone, and 15 percent shale); neutral.

Range in Characteristics

Thickness of the solum: Less than 20 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to moderately alkaline throughout
Content of rock fragments: 20 to 40 percent in the A horizon; 40 to 80 percent in the C horizon

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—loam, silt loam

C horizon:
Hue—7.5YR to 2.5Y
Value—2 to 6
Chroma—1 to 8
Texture—loam, silt loam

Latham Series

Depth class: Moderately deep
Drainage class: Moderately well drained
Permeability: Very slow
Landscape position: On the upper side slopes of hills and on narrow summits and shoulders of ridges; throughout the county
Parent material: Residuum derived from acid shale and interbedded siltstone
Slope range: 8 to 35 percent
Classification: Fine, mixed, semiactive, mesic Aquic Hapludults

Representative Pedon

Latham silt loam, in a pastured area of Dormont-Latham complex, 15 to 25 percent slopes, in Wayne County, West Virginia; about 300 yards east-southeast of the intersection of West Virginia State Routes 152 and 37 and about 200 yards southeast of the confluence of Trace Fork and the West Fork of Twelvepole Creek; USGS Wayne topographic quadrangle; lat. 38 degrees 10 minutes 35 seconds N. and long. 82 degrees 28 minutes 35 seconds W.

A—0 to 4 inches; dark brown (10YR 3/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine and medium granular structure; very friable; many fine and medium roots; 5 percent siltstone and shale channers; slightly acid; abrupt smooth boundary.

BA—4 to 7 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium granular structure; friable; many fine and medium roots; 20 percent siltstone and shale channers; slightly acid; clear wavy boundary.

Bt1—7 to 16 inches; yellowish brown (10YR 5/6) channery silty clay loam; moderate fine and medium subangular blocky structure; friable; common fine and medium roots; many distinct clay films on faces of peds; 15 percent siltstone and shale channers; very strongly acid; clear smooth boundary.

Bt2—16 to 23 inches; light yellowish brown (2.5Y 6/4) channery silty clay; many fine and medium light gray (2.5Y 7/2) redox depletions; weak fine and medium subangular blocky structure; firm; common fine roots; many distinct clay films on faces of peds; 25 percent siltstone and shale channers; very strongly acid; clear wavy boundary.

Bt3—23 to 29 inches; yellowish brown (10YR 5/6) channery silty clay; many medium and coarse light gray (10YR 7/1) redox depletions; weak medium subangular blocky structure; firm; few fine roots; few or common distinct clay films on faces of peds; 30 percent siltstone and shale channers; very strongly acid; clear wavy boundary.

C—29 to 34 inches; yellowish brown (10YR 5/6) channery silty clay; many medium and coarse light gray (10YR 7/1) redox depletions; massive; firm; 30 percent siltstone and shale channers; very strongly acid; abrupt wavy boundary.

Cr—34 to 39 inches; soft interbedded acid gray shale and siltstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Depth to bedrock: 20 to 40 inches

Reaction: Extremely acid to slightly acid in the A and BA horizons; extremely acid or very strongly acid in the Bt and C horizons

Content of rock fragments: 0 to 15 percent in the A horizon; 0 to 20 percent in the subsoil and substratum

Note: Redox accumulations or depletions, or both, in the lower part of the argillic horizon and in the lower part of the substratum in most pedons

A horizon:

Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam, silty clay loam

BA horizon:

Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam, silty clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—silty clay loam, silty clay

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—silty clay loam, silty clay

C horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture—silty clay loam, silty clay

Lily Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Landscape position: On summits and shoulders of ridges; throughout the county
Parent material: Sandstone residuum
Slope range: 15 to 35 percent
Classification: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Representative Pedon

Lily sandy loam, in an area of Lily sandy loam, 15 to 25 percent slopes, in Cabell County, West Virginia; along West Virginia Route 6/2 and about 800 yards north of West Virginia Route 6; USGS Glenwood topographic quadrangle; lat. 38 degrees 31 minutes 47 seconds N. and long. 82 degrees 09 minutes 10 seconds W.

Oi—0 to 2 inches; slightly decomposed leaf litter.
Ap—2 to 8 inches; brown (10YR 5/3) sandy loam; weak fine and medium granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.
E—8 to 12 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.
BE—12 to 16 inches; strong brown (7.5YR 5/8) loam; weak medium subangular blocky structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.
Bt1—16 to 26 inches; strong brown (7.5YR 5/8) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; many clay films on faces of peds; very strongly acid; clear wavy boundary.
Bt2—26 to 32 inches; strong brown (7.5YR 5/8) loam; weak medium and coarse subangular blocky structure; friable; few fine roots; common distinct clay films on faces of peds; very strongly acid; clear wavy boundary.
C—32 to 38 inches; yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) sandy loam; massive; very friable; very strongly acid; abrupt smooth boundary.
R—38 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid throughout
Content of rock fragments: 0 to 20 percent throughout

A and E horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—loam, fine sandy loam, sandy loam

BE horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—5 to 8
Texture—loam, fine sandy loam, sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy clay loam, clay loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, fine sandy loam, sandy loam, sandy clay loam, clay loam
Note—mottles in shades of red, yellow, brown, or gray in some pedons

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, fine sandy loam, sandy loam, sandy clay loam
Note—mottles in shades of red, yellow, brown, or gray in some pedons

Lobdell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: On nearly level low flood plains along small streams and intermittent drainageways; throughout the county
Parent material: Recent loamy alluvium
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, active, mesic Fluvaquentic Eutrudepts

Representative Pedon

Lobdell loam, in an area of Lobdell loam, occasionally flooded, in a pastured area in Wayne County, West Virginia; near Whites Creek, about 640 yards from the intersection of County Routes 14 and 19 and about 90 yards northwest of the confluence of Spurs Run and Whites Creek; USGS Burnaugh topographic quadrangle; lat. 38 degrees 17 minutes 28 seconds N. and long. 82 degrees 32 minutes 07 seconds W.

A—0 to 6 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure parting to weak fine and medium granular; friable; many fine and medium roots; 5 percent rock fragments; slightly acid; clear wavy boundary.

Bw1—6 to 20 inches; dark yellowish brown (10YR 4/4) loam; weak medium and coarse subangular blocky structure; friable; common fine and medium roots; neutral; gradual wavy boundary.

Bw2—20 to 38 inches; dark yellowish brown (10YR 4/4) loam; common medium light brownish gray (10YR 6/2) redox depletions; weak medium and coarse subangular blocky structure; friable; common fine roots; neutral; gradual wavy boundary.

C—38 to 65 inches; dark yellowish brown (10YR 4/6) stratified silt loam and loam; many medium light brownish gray (10YR 6/2) redox depletions; massive; friable; many fine and medium concretions of iron and manganese; neutral.

Range in Characteristics

Thickness of the solum: 24 to 48 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to neutral throughout the A and Bw horizons; moderately acid to neutral in the C horizon
Content of rock fragments: 0 to 5 percent in the A horizon; 0 to 15 percent in the subsoil and substratum

A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—3
Texture—loam, silt loam

BA horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam, silty clay loam
Note—redox depletions at a depth of 20 to 24 inches in most pedons

BC horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam, silty clay loam, fine sandy loam
Note—redox depletions and concentrations in most pedons

C horizon and Cg horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—stratified silt loam, loam, fine sandy loam

Matewan Series

Depth class: Moderately deep (fig. 13)
Drainage class: Well drained or somewhat excessively drained
Permeability: Moderately rapid or rapid
Landscape position: On summits, shoulders, and nose slopes of ridges and on convex and linear side slopes of hills
Parent material: Residuum derived from gray and brown acid sandstone
Slope range: 25 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Figure 13.—Representative profile of the Matewan series. Rock fragments as much as 3 inches or more in size make up about 50 percent of the total volume of the subsoil. Depth is marked in inches.

Representative Pedon

Matewan sandy loam, in a wooded area of Highsplint-Matewan-Cloverlick association, very steep, extremely stony, on a very steep upper backslope; 1.5 miles west-southwest of the Abbott Fork-Big Ugly Creek confluence; 1 mile south of the head of the Big Fork Branch of Sand Creek; 0.8 mile north of the Elias Fork of Sand Creek; USGS Big Creek topographic quadrangle; lat. 38 degrees 02 minutes 37 seconds N. and long. 82 degrees 05 minutes 40 seconds W.

Oi—0 to 3 inches; slightly decomposed leaf litter.
Oe—3 to 4 inches; very dark brown (10YR 2/2), moderately decomposed leaf litter; abrupt smooth boundary.
A—4 to 6 inches; olive brown (2.5Y 4/3) sandy loam; moderate fine granular structure; very friable; common very fine, fine, and medium roots; 10 percent sandstone channers; strongly acid; clear wavy boundary.
BA—6 to 9 inches; olive brown (2.5Y 4/4) channery sandy loam; weak fine subangular blocky structure; very friable; common fine and very fine roots; few medium roots; 15 percent sandstone channers; strongly acid; gradual wavy boundary.

Bw1—9 to 18 inches; yellowish brown (10YR 5/6) channery sandy loam; moderate fine and medium subangular blocky structure; very friable; common fine and very fine roots; few medium roots; 20 percent sandstone channers; strongly acid; gradual wavy boundary.

Bw2—18 to 26 inches; yellowish brown (10YR 5/6) channery sandy loam; weak fine and medium subangular blocky structure; very friable; few fine and medium roots; 30 percent sandstone channers; very strongly acid; gradual wavy boundary.

C—26 to 34 inches; yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) extremely channery sandy loam; massive; very friable; few fine roots; 60 percent sandstone channers; very strongly acid; abrupt smooth boundary.

R—34 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Very strongly acid to moderately acid throughout
Content of rock fragments: 5 to 20 percent in the A horizon; 15 to 50 percent in the B horizon; 50 to 70 percent in the C horizon

A horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—3 or 4
Texture—fine sandy loam, sandy loam, loam

BA horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, loam

Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, loam

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, loam

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loamy sand, sandy loam, loam

Middlebury Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: On low narrow flood plains along small streams and intermittent drainageways; in the southern part of Lincoln County

Parent material: Local alluvium
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Representative Pedon

Middlebury loam, frequently flooded; 400 feet east of the confluence of Trace Creek and Big Ugly Creek and 1.5 miles west of the Lincoln-Boone County line along Big Ugly Creek; USGS Mud topographic quadrangle; lat. 38 degrees 02 minutes 01 second N. and long. 81 degrees 57 minutes 17 seconds W.

A—0 to 7 inches; brown (10YR 4/3) loam; weak fine and medium granular structure; very friable; common fine roots; moderately acid; clear smooth boundary.
BA—7 to 12 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; very friable; common very fine roots; moderately acid; clear smooth boundary.
Bw1—12 to 19 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; very friable; few very fine roots; slightly acid; gradual smooth boundary.
Bw2—19 to 30 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium distinct light brownish gray (10YR 6/2) redox depletions; few fine prominent reddish yellow (7.5YR 6/6) iron accumulations; weak medium subangular blocky structure; very friable; slightly acid; gradual smooth boundary.
Bg—30 to 43 inches; light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) fine sandy loam; common fine and medium prominent strong brown (7.5YR 5/6) masses in which iron has accumulated; few fine prominent black (7.5YR 2.5/1) masses in which manganese has accumulated; weak medium subangular blocky structure; very friable; neutral; clear smooth boundary.
Cg1—43 to 52 inches; light gray (10YR 7/1) sandy loam; common medium prominent brownish yellow (10YR 6/6) sand coatings on faces of peds; massive; very friable; 10 percent sandstone gravel; slightly acid; clear smooth boundary.
Cg2—52 to 65 inches; light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6) gravelly loamy sand; loose, single grain; very friable; 30 percent sandstone gravel; slightly acid.

Range in Characteristics

Thickness of the solum: 30 to 45 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the A horizon; moderately acid to neutral throughout the BA, Bw, Bg, C, and Cg horizons
Content of rock fragments: 0 to 40 percent throughout

A horizon:
Hue—10YR or 2.5Y
Value—3 or 4
Chroma—3
Texture—fine sandy loam, loam

BA horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—fine sandy loam, loam, silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5

Chroma—3 or 4
Texture—fine sandy loam, sandy loam, loam, silt loam

Bg horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 6
Texture—fine sandy loam, sandy loam, loam, silt loam

BC horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, loam

C or Cg horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 4
Texture—fine sandy loam, sandy loam, loam, loamy sand

Moshannon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On low flood plains along the major streams; in the northern part of the county
Parent material: Alluvium
Slope range: 0 to 3 percent
Classification: Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Moshannon silt loam, in a cultivated field in Putnam County, West Virginia; along Eighteenmile Creek, about 0.4 mile northeast of the confluence of Eighteenmile Creek and Jakes Run; USGS Winfield topographic quadrangle; lat. 38 degrees 37 minutes 02 seconds N. and long. 81 degrees 56 minutes 21 seconds W.

Ap—0 to 9 inches; brown (7.5YR 4/4) silt loam; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
Bw1—9 to 14 inches; reddish brown (5YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine roots; moderately acid; clear wavy boundary.
Bw2—14 to 26 inches; yellowish red (5YR 4/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; few discontinuous clay films on faces of peds; moderately acid; clear wavy boundary.
Bw3—26 to 37 inches; yellowish red (5YR 4/6) loam; weak medium and coarse subangular blocky structure; friable; moderately acid; gradual wavy boundary.
C—37 to 65 inches; brown (7.5YR 4/4) stratified loam, sandy loam, and loamy sand; massive; very friable; moderately acid.

Range in Characteristics

Thickness of the solum: 32 to 48 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to neutral in the A and C horizons; moderately acid or slightly acid in the Bw horizon

Content of rock fragments: 0 to 5 percent in the solum; 0 to 20 percent in the substratum

A horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—3 or 4
Texture—silt loam, loam

Bw horizon:
Hue—2.5YR or 5YR
Value—3 to 6
Chroma—3 to 6
Texture—loam, silt loam, silty clay loam

C horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—3 or 4
Texture—stratified layers of sandy loam, loamy sand, loam, silt loam, silty clay loam

Nelse Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Landscape position: On gently sloping to moderately steep banks along the major streams and rivers
Parent material: Recent alluvium
Slope range: 3 to 25 percent
Classification: Coarse-loamy, mixed, active, nonacid, mesic Mollic Udifluvents

Representative Pedon

Nelse silt loam, 3 to 25 percent slopes, frequently flooded, in a wooded area; 0.4 mile northeast of Fulks Cemetery; 0.38 mile southeast of the confluence of Furnett Creek and the Guyandotte River and 0.32 mile northwest of the confluence of Laurel Branch and the Guyandotte River; USGS Branchland topographic quadrangle; lat. 38 degrees 08 minutes 22 seconds N. and long. 82 degrees 10 minutes 45 seconds W.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; weak fine granular structure; very friable; common fine roots; neutral; clear smooth boundary.
A2—5 to 18 inches; dark brown (10YR 3/3) loam, brown (10YR 4/3) dry; strata (0.5 inch) of dark yellowish brown (10YR 4/4) loamy fine sand; weak medium granular structure; very friable; few fine roots; slightly acid; gradual smooth boundary.
C1—18 to 40 inches; yellowish brown (10YR 5/4) sandy loam; massive; very friable; common dark yellowish brown (10YR 4/4) sand bedding planes; 3 percent coal fragments (less than 1 millimeter in size); moderately acid; gradual smooth boundary.
C2—40 to 65 inches; yellowish brown (10YR 5/6) loamy fine sand; single grain; very friable; few dark yellowish brown (10YR 4/4) sand bedding planes; 2 percent coal fragments (1 to 2 millimeters in size); moderately acid.

Range in Characteristics

Thickness of the solum: Less than 40 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to moderately alkaline throughout
Content of rock fragments: 0 to 15 percent throughout; 0 to 10 percent coal fragments ranging from 0.5 millimeter to 1 inch in size

A horizon:
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—2 or 3
Texture—silt loam, loam, fine sandy loam, sandy loam
Note—commonly stratified or has bedding planes of very fine sand ranging to medium sand

C horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 6
Texture—silt loam, loam, fine sandy loam, sandy loam, loamy sand
Note—stratified in some pedons; bedding planes of very fine sand ranging to medium sand in most pedons

Orrville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate or moderately rapid
Landscape position: On low flood plains along the major rivers and small streams; throughout the central and northern parts of the county
Parent material: Alluvium
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Representative Pedon

Orrville loam, occasionally flooded; 1.4 miles southeast of Hamlin; 0.2 mile north of the mouth of Tincture Fork of Trace Creek and 500 feet south-southwest of the confluence of Jaynes Branch of Trace Creek and Trace Creek; USGS Hamlin topographic quadrangle; lat. 38 degrees 15 minutes 54 seconds N. and long. 82 degrees 05 minutes 02 seconds W.

A—0 to 6 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; very friable; many fine and very fine roots; slightly acid; clear smooth boundary.
BA—6 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; very friable; common fine and very fine roots; slightly acid; clear smooth boundary.
Bw—12 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; common fine distinct gray (10YR 6/1) redox depletions; moderate medium subangular blocky structure; friable; few fine roots; slightly acid; abrupt smooth boundary.
Bg1—17 to 30 inches; gray (10YR 6/1) silt loam; common medium prominent strong brown (7.5YR 4/6) oxidized root channels; moderate medium subangular blocky structure; friable; few very fine roots; neutral; clear smooth boundary.
Bg2—30 to 36 inches; gray (10YR 6/1) and yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; slightly acid; clear smooth boundary.

Cg—36 to 65 inches; gray (10YR 5/1) loam; massive; friable; neutral.

Range in Characteristics

Thickness of the solum: 24 to 48 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid in the A, BA, and Bw horizons; strongly acid to neutral in the Bg and Cg horizons
Content of rock fragments: 0 to 5 percent in the A horizon; 0 to 15 percent in the B horizon; 0 to 25 percent in the C horizon

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 or 2
Texture—loam, silt loam

BA horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam

Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam

Bg horizon:
Hue—10YR, 2.5Y, or is neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, or is neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, sandy loam

Pineville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On the middle and lower side slopes of hills; on footslopes, colluvial fans, and benches; and in coves
Parent material: Colluvium derived from sandstone, siltstone, and shale
Slope range: 25 to 65 percent
Classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Representative Pedon

Pineville channery loam, 25 to 35 percent slopes, extremely stony; about 0.38 mile south-southwest of Ferrelsburg, West Virginia, and 0.28 mile north-northwest of the mouth of Walker Branch Hollow; USGS Big Creek topographic quadrangle; lat. 38 degrees 01 minute 10 seconds N. and long. 82 degrees 06 minutes 35 seconds W.

Oi—0 to 2 inches; slightly decomposed leaf litter.

Oe—2 to 3 inches; moderately decomposed organic material.

A—3 to 5 inches; brown (10YR4/3) channery loam; weak fine and medium granular structure; friable; many very fine, fine, and medium roots; 15 percent sandstone channers; strongly acid; clear smooth boundary.

BA—5 to 8 inches; yellowish brown (10YR 5/4) channery loam; weak medium subangular blocky structure; friable; common fine and medium roots; 15 percent sandstone and siltstone channers; strongly acid; clear wavy boundary.

Bt1—8 to 16 inches; dark yellowish brown (10YR 4/6) channery loam; moderate fine and medium subangular blocky structure; few fine and medium roots; friable; few faint discontinuous clay films on faces of peds; 15 percent sandstone and siltstone channers; strongly acid; clear wavy boundary.

Bt2—16 to 39 inches; dark yellowish brown (10YR 4/4) channery sandy clay loam; moderate medium subangular blocky structure; few fine and very fine roots; firm; common faint discontinuous clay films on faces of peds; 20 percent sandstone and siltstone channers; strongly acid; clear wavy boundary.

BC—39 to 50 inches; yellowish brown (10YR 5/4) channery sandy clay loam; weak medium and coarse subangular blocky structure; common fine and very fine roots; firm; 25 percent sandstone and siltstone channers; strongly acid; clear wavy boundary.

C—50 to 67 inches; yellowish brown (10YR 5/4) channery sandy clay loam; massive; firm; 30 percent sandstone channers; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches

Depth to bedrock: More than 60 inches

Reaction: Extremely acid to neutral in the A horizon; extremely acid to strongly acid in the B and C horizons

Content of rock fragments: 10 to 30 percent throughout

A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—3
Texture—loam, silt loam, sandy loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, clay loam, sandy clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, clay loam, sandy clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6

Chroma—4 to 8
Texture—loam, sandy loam, clay loam, sandy clay loam

Rayne Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On convex and linear side slopes of hills and on shoulders of ridges; throughout the northern and central parts of Lincoln County
Parent material: Residuum derived from interbedded shale, siltstone, and fine grained sandstone
Slope range: 35 to 65 percent
Classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Representative Pedon

Rayne silt loam, in an area of Rayne-Matewan complex, 35 to 65 percent slopes, very stony; about 0.25 mile east-southeast of Webb Cemetery at the Wayne-Lincoln County line and 30 feet north of County Route 37-2, near the head of Sulphur Spring Fork Hollow; USGS Ranger topographic quadrangle; lat. 38 degrees 03 minutes 21 seconds N. and long. 82 degrees 12 minutes 28 seconds W.

Oi—0 to 2 inches; slightly decomposed forest leaf litter.
A—2 to 7 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; many fine and very fine roots; 10 percent siltstone channers; very strongly acid; clear smooth boundary.
BA—7 to 11 inches; yellowish brown (10YR 5/6) and brown (10YR 5/3) channery silt loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 20 percent siltstone channers; very strongly acid; gradual smooth boundary.
Bt1—11 to 21 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; many fine and medium roots; common distinct discontinuous clay films on faces of peds; 15 percent siltstone channers; very strongly acid; gradual smooth boundary.
Bt2—21 to 35 inches; yellowish brown (10YR 5/4) channery silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct discontinuous clay films on faces of peds; 25 percent siltstone channers; very strongly acid; clear smooth boundary.
BC—35 to 44 inches; yellowish brown (10YR 5/4) very channery silt loam; few faint yellowish brown (10YR 5/6) lithochromic mottles; weak medium subangular blocky structure; friable; few fine roots; 35 percent siltstone channers; very strongly acid; clear smooth boundary.
C—44 to 48 inches; yellowish brown (10YR 5/4) very channery silt loam; common medium distinct gray (10YR 6/1) and yellowish brown (10YR 5/8) lithochromic mottles; weak thin relict platy structure; friable; 45 percent siltstone channers; very strongly acid; abrupt smooth boundary.
Cr—48 to 53 inches; interbedded soft shale and siltstone bedrock.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid or strongly acid throughout
Content of rock fragments: 0 to 40 percent in the A, BA, and Bt horizons; 15 to 50 percent in the BC and C horizons

A horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam, loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—silt loam, loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 8
Chroma—3 to 8
Texture—loam, silt loam

Senecaville Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow
Landscape position: On flood plains along the major streams; in the northern part of Lincoln County
Parent material: Alluvium washed from lime-influenced and acid soils on uplands
Slope range: 0 to 3 percent
Classification: Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts

Representative Pedon

Senecaville silt loam, in an area of Putnam County, West Virginia; in a meadow at the confluence of Bridge Creek and Trace Fork, about 50 yards north of Route 39, and about 30 yards west of Route 52; USGS Garretts Bend topographic quadrangle; lat. 38 degrees 20 minutes 13 seconds N. and long. 81 degrees 56 minutes 40 seconds W.

Ap—0 to 6 inches; brown (7.5YR 4/4) silt loam; weak fine and medium subangular blocky structure parting to weak medium granular; very friable; many fine and medium roots; moderately acid; abrupt wavy boundary.
Bw1—6 to 16 inches; reddish brown (5YR 4/4) silt loam; weak and moderate medium subangular blocky structure; very friable; many fine roots; common discontinuous fine silt coatings on faces of peds; moderately acid; gradual wavy boundary.
Bw2—6 to 30 inches; reddish brown (5YR 4/3) silt loam; common medium and coarse brown (7.5YR 4/2 and 5/2) redox depletions; yellowish red (5YR 5/8) redox

accumulations; weak coarse subangular blocky structure; very friable; common fine roots; slightly acid; gradual wavy boundary.

Cg1—30 to 48 inches; dark reddish gray (5YR 4/2) silt loam; common coarse yellowish red (5YR 5/8) redox accumulations; massive; friable; few fine roots; common concretions of manganese; slightly acid; gradual wavy boundary.

Cg2—48 to 65 inches; gray (N 6/) fine sandy loam; massive; friable; common concretions of manganese; slightly acid.

Range in Characteristics

Thickness of the solum: 30 to 42 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly acid throughout
Content of rock fragments: 0 to 5 percent throughout

A horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam

BA horizon (if it occurs):
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, silt loam

Bw horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam

Cg horizon:
Hue—2.5YR to 7.5YR or is neutral
Value—2 to 5
Chroma—0 to 2
Texture—fine sandy loam, loam, silt loam

Sensabaugh Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On alluvial fans at the mouth of hollows and on narrow flood plains along small streams and intermittent drainageways
Parent material: Local alluvium or colluvium derived from soils underlain by shale, sandstone, and siltstone
Slope range: 0 to 8 percent
Classification: Fine-loamy, mixed, semiactive, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded; in a pastured area along Turkey Creek of Trace Fork of Mud River; USGS Garretts Bend topographic quadrangle; lat. 38 degrees 17 minutes 12 seconds N. and long. 81 degrees 58 minutes 01 second W.

Ap—0 to 8 inches; brown (7.5YR 4/3) loam; weak fine and medium granular structure; very friable; many fine roots; 10 percent sandstone, siltstone, and shale gravel; neutral; abrupt wavy boundary.

BA—8 to 15 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; common fine roots; 10 percent sandstone, siltstone, and shale gravel; moderately acid; clear wavy boundary.

Bw1—15 to 24 inches; brown (7.5YR 4/4) gravelly loam; weak medium subangular blocky structure; friable; common fine roots; 25 percent sandstone, siltstone, and shale gravel; slightly acid; clear wavy boundary.

Bw2—24 to 30 inches; brown (7.5YR 4/4) gravelly fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; few fine and medium faint brown (7.5YR 5/3) silt films on faces of peds and in pores; 30 percent sandstone, siltstone, and shale gravel; moderately acid; clear irregular boundary.

C1—30 to 40 inches; brown (10YR 5/3) very gravelly loam; massive; friable; few fine roots; 40 percent sandstone, siltstone, and shale gravel; slightly acid; clear irregular boundary.

C2—40 to 65 inches; brown (10YR 5/3) very gravelly loam; massive; friable; common fine and medium prominent strong brown (7.5YR 5/8) redox concentrations; common fine black (N 2.5/) concretions of manganese; 50 percent sandstone, siltstone, and shale gravel; slightly acid; abrupt irregular boundary.

R—65 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 24 to 55 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to slightly alkaline throughout
Content of rock fragments: 5 to 25 percent in the A and BA horizons; 15 to 40 percent in the Bw horizon; 15 to 70 percent in the C horizon

A horizon:
Hue—5YR to 10YR
Value—4
Chroma—3 or 4
Texture—loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam, silt loam, sandy clay loam, silty clay loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam, silt loam, sandy clay loam, silty clay loam, clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam, loam, silt loam, silty clay loam, sandy clay loam, clay loam

Sharpcrest Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderately rapid
Landscape position: On very steep, sharp-crested summits of ridges and very steep side slopes of hills; throughout the southern half of the county
Parent material: Sandstone residuum
Slope range: 35 to 75 percent
Classification: Coarse-loamy, siliceous, semiactive, mesic Typic Dystrudepts

Representative Pedon

Sharpcrest coarse sandy loam, in a wooded area of Sharpcrest-Hazleton complex, 35 to 75 percent slopes, extremely bouldery, on a very steep side slope near the summit of Green Shoals Mountain; 1.83 miles north-northeast of the intersection of West Virginia Route 10 and County Route 7 and 0.79 mile south of the confluence of Abbott Fork and Big Ugly Creek; USGS Big Creek topographic quadrangle; lat. 38 degrees 02 minutes 16 seconds N. and long. 82 degrees 03 minutes 59 seconds W.

Oi—0 to 2 inches; slightly decomposed organic material; abrupt smooth boundary.
Oe—2 to 3 inches; fibrous mat of moderately decomposed roots and leaves; abrupt smooth boundary.
A—3 to 9 inches; dark grayish brown (10YR 4/2) coarse sandy loam; weak fine granular structure; very friable; many very fine and fine roots; 5 percent angular and subangular sandstone channers (less than 1 inch in diameter); very strongly acid; clear wavy boundary.
AB—9 to 16 inches; dark grayish brown (10YR4/2) and yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure parting to weak fine and medium granular; very friable; many fine roots; common very fine and coarse roots; 10 percent angular and subangular sandstone channers (less than 1 inch in diameter); very strongly acid; clear wavy boundary.
Bw1—16 to 24 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; common medium roots; few very fine and fine roots; 10 percent angular sandstone channers (2 to 3 inches in diameter); very strongly acid; gradual wavy boundary.
Bw2—24 to 31 inches; yellowish brown (10YR 5/6) channery sandy loam; moderate medium subangular blocky structure; friable; common medium roots; few fine and coarse roots; 20 percent angular sandstone channers (2 to 3 inches in diameter); very strongly acid; gradual wavy boundary.
BC—31 to 38 inches; yellowish brown (10YR 5/6) channery sandy loam; weak fine and medium subangular blocky structure; friable; few medium and coarse roots; 30 percent angular sandstone channers (2 to 3 inches in diameter); very strongly acid; gradual wavy boundary.
C—38 to 48 inches; yellowish brown (10YR 5/6) very channery coarse sandy loam; massive; very friable; 45 percent angular sandstone channers (2 to 4 inches in diameter); very strongly acid; abrupt smooth boundary.
R—48 inches; hard sandstone bedrock.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Extremely acid to strongly acid throughout

Content of rock fragments: 5 to 20 percent in the A horizon; 5 to 35 percent in the Bw horizon; 10 to 40 percent in the BC horizon; 15 to 50 percent in the C horizon

A horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam, sandy loam, fine sandy loam, coarse sandy loam

AB or BA horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, sandy loam, fine sandy loam, coarse sandy loam

Bw horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture—loam, sandy loam, fine sandy loam, coarse sandy loam

BC horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture—loam, sandy loam, fine sandy loam, coarse sandy loam, loamy sand

C horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—3 to 8
Texture—loam, sandy loam, fine sandy loam, coarse sandy loam, loamy sand

Shelocta Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: On the middle and lower side slopes of hills; on benches, footslopes, and colluvial fans; and in coves
Parent material: Mixed colluvium derived from shale, siltstone, and sandstone
Slope range: 8 to 65 percent
Classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Representative Pedon

Shelocta silt loam, in a wooded area of Logan County, West Virginia; about 0.25 mile due north of Garrett Chapel; USGS Henlawson topographic quadrangle; lat. 37 degrees 58 minutes 41 seconds N. and long. 82 degrees 05 minutes 18 seconds W.

Oi—0 to 3 inches; slightly decomposed leaf litter.
Oe—3 to 4 inches; very dark grayish brown (10YR 3/2), moderately decomposed organic material.
A—4 to 7 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; many fine and very fine roots; 5 percent sandstone and shale channers; strongly acid; abrupt wavy boundary.
BA—7 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; many fine and medium roots;

10 percent sandstone and shale channers; very strongly acid; clear wavy boundary.

Bt1—14 to 27 inches; strong brown (7.5YR 4/6) channery silty clay loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; common distinct discontinuous clay films in root channels, in pores, and on faces of peds; 15 percent sandstone and shale channers; very strongly acid; clear wavy boundary.

Bt2—27 to 42 inches; strong brown (7.5YR 4/6) channery silty clay loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; common distinct discontinuous clay films in root channels, on pores, and on faces of peds; 20 percent sandstone and shale channers; very strongly acid; clear wavy boundary.

Bt3—42 to 58 inches; brown (7.5YR 4/4) channery silty clay loam; moderate coarse subangular blocky structure; firm; few medium and coarse roots; common distinct discontinuous clay films on faces of peds and in pores; 25 percent sandstone and shale channers; very strongly acid; clear wavy boundary.

BC—58 to 68 inches; dark yellowish brown (10YR 4/4) very channery silty clay loam; weak medium subangular blocky structure; firm; few fine roots; common distinct discontinuous clay films on faces of peds and in pores; 35 percent sandstone and shale channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: 40 to more than 80 inches
Reaction: Extremely acid to strongly acid throughout
Content of rock fragments: 5 to 15 percent in the A and BA horizons; 5 to 50 percent in the Bt, BC, and C horizons

A horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—loam, silt loam

BA horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—loam, silt loam, silty clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—loam, silt loam, silty clay loam

Note—redoximorphic or relict redoximorphic features in shades of brown, olive, or gray in some pedons

Skidmore Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Landscape position: On narrow flood plains along the tributaries of streams; throughout the southern part of Lincoln County
Parent material: Mixed alluvium
Slope range: 0 to 3 percent
Classification: Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Skidmore gravelly sandy loam, frequently flooded, on a low flood plain along Sulphur Creek; about 1.1 miles northwest of Tony Cemetery, 0.5 mile northeast of Green Shoals Mountain, and 800 feet east of Big Ugly Creek; USGS Big Creek topographic quadrangle; lat. 38 degrees 02 minutes 57 seconds N. and long. 82 degrees 03 minutes 07 seconds W.

A—0 to 10 inches; brown (10YR 4/3) gravelly sandy loam; moderate medium granular structure; very friable; common very fine and medium roots; few coarse roots; 15 percent sandstone gravel; moderately acid; abrupt smooth boundary.
Bw—10 to 22 inches; dark yellowish brown (10YR 4/6) very gravelly sandy loam; weak fine subangular blocky structure; very friable; few very fine and medium roots; 40 percent sandstone gravel; slightly acid; clear smooth boundary.
BC—22 to 30 inches; dark yellowish brown (10YR 4/6 and 4/4) extremely cobbly sandy loam; weak fine subangular blocky structure; very friable; few very fine and fine roots; 65 percent sandstone cobbles; slightly acid; clear smooth boundary.
C—30 to 65 inches; dark yellowish brown (10YR 4/4) and brown (10YR 4/3) extremely cobbly loamy sand; loose, single grain; very friable; few very fine roots; 80 percent sandstone cobbles; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to slightly alkaline throughout
Content of rock fragments: 5 to 50 percent in the A and Bw horizons; 35 to 90 percent in the BC and C horizons

A horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—gravelly or channery analogs of fine sandy loam, loam, and sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—very gravelly, channery, or cobbly analogs of fine sandy loam, loam, and sandy loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—very gravelly or extremely gravelly, channery, or cobbly analogs of fine sandy loam, loam, and sandy loam

C horizon:
Hue—7.5 YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—very gravelly or extremely gravelly, channery, or cobbly analogs of fine sandy loam, loam, sandy loam, and loamy sand

Udorthents

Depth class: Deep or very deep
Drainage class: Well drained to excessively drained
Permeability: Moderately rapid to slow
Landscape position: Along highways and railroads, on construction sites and mine sites, and in other developed areas in the county
Slope range: 3 percent to nearly vertical cuts

Representative Pedon

Udorthents differ greatly from place to place. Thus, a representative pedon is not given.

Range in Characteristics

Depth to bedrock: Generally, more than 40 inches; more than 30 feet in some fill areas
Reaction: Extremely acid to moderately alkaline
Rock fragments: A wide range in kind, size, and amount

A horizon:
Hue—7.5YR to 5Y
Value—3 to 6
Chroma—2 to 8
Texture—sandy loam, loam, silt loam, silty clay loam, clay loam

C horizon:
Hue—7.5YR to 5Y
Value—3 to 6
Chroma—2 to 8
Texture—sandy loam, loam, silt loam, silty clay loam, clay loam

Upshur Series

Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Slow
Landscape position: On summits and shoulders of ridges, on benches, and on side slopes of hills; throughout the northern third of the county
Parent material: Clay shales interbedded with siltstone

Slope range: 8 to 65 percent
Classification: Fine, mixed, superactive, mesic Typic Hapludalfs

Representative Pedon

Upshur silt loam, in a wooded area of Gilpin-Upshur complex, 15 to 25 percent slopes; along a ridge between Tony Branch and Trace Fork of Mud River; USGS Garretts Bend topographic quadrangle; lat. 38 degrees 18 minutes 18 seconds N. and long. 81 degrees 55 minutes 23 seconds W.

Oi—0 to 1 inch; slightly decomposed leaf litter.
A—1 to 4 inches; brown (7.5YR 4/4) silt loam; weak fine granular structure; very friable; many very fine, fine, and medium roots; 5 percent shale channers; very strongly acid; clear wavy boundary.
BA—4 to 8 inches; strong brown (7.5YR 5/6) silt loam; weak fine subangular blocky structure; friable; many very fine, fine, and medium roots; 10 percent shale channers; very strongly acid; clear wavy boundary.
Bt1—8 to 24 inches; yellowish red (5YR 4/6) silty clay; moderate fine and medium subangular blocky structure; firm; common fine and medium roots; common distinct clay films on faces of peds; 10 percent shale channers; very strongly acid; clear wavy boundary.
Bt2—24 to 32 inches; dark reddish brown (2.5YR 3/4) clay; moderate medium and coarse subangular blocky structure; firm; few medium roots; many distinct clay films on faces of peds; 10 percent shale channers; very strongly acid; clear wavy boundary.
Bt3—32 to 41 inches; dusky red (10R 3/4) channery clay; weak fine and medium subangular blocky structure; firm; few fine roots; common distinct clay films on faces of peds; 20 percent shale channers; few fine black (N 2.5/) concretions of manganese; moderately acid; clear wavy boundary.
C—41 to 47 inches; dusky red (10R 3/4) channery clay; massive; firm; 20 percent shale channers; common fine black (N 2.5/) concretions of manganese; moderately acid; clear wavy boundary.
Cr—47 to 52 inches; weathered soft shale and siltstone bedrock.

Range in Characteristics

Thickness of the solum: 26 to 50 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid to slightly acid in the A and BA horizons; very strongly acid to moderately acid in the Bt and BC horizons; strongly acid to moderately alkaline in the C horizon
Content of rock fragments: 0 to 15 percent in the A and BA horizons; 10 to 25 percent in the Bt and BC horizons; 0 to 75 percent in the C horizon

A horizon:
Hue—2.5YR to 10YR
Value—2 to 4
Chroma—2 to 4
Texture—silt loam

BA horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam

Bt horizon:
Hue—10R to 5YR

Value—3 or 4
Chroma—3 to 6
Texture—silty clay, clay

BC horizon (if it occurs):
Hue—10R to 5YR
Value—3 or 4
Chroma—3 to 6
Texture—silty clay loam, silty clay, clay

C horizon:
Hue—10R to 5YR
Value—3 or 4
Chroma—3 to 6
Texture—silt loam, silty clay loam, silty clay, clay loam, clay

Vandalia Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow or very slow
Landscape position: On footslopes, colluvial fans, and side slopes of hills; throughout the northeastern part of the county
Parent material: Colluvium derived from shale, siltstone, and fine grained sandstone
Slope range: 8 to 35 percent
Classification: Fine, mixed, active, mesic Typic Hapludalfs

Representative Pedon

Vandalia silt loam, 15 to 25 percent slopes, very stony; in a wooded footslope above Tony Branch of Trace Fork of Mud River; USGS Garretts Bend topographic quadrangle; lat. 38 degrees 18 minutes 24 seconds N. and long. 81 degrees 55 minutes 46 seconds W.

A—0 to 3 inches; dark brown (7.5YR 3/2) silt loam; moderate fine and medium granular structure; very friable; many fine, medium, and coarse roots; 10 percent shale channers; moderately acid; gradual wavy boundary.

BA—3 to 7 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; very friable; common medium and coarse roots; 10 percent shale channers; moderately acid; clear wavy boundary.

Bt1—7 to 15 inches; strong brown (7.5YR 4/6) channery silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds; 20 percent shale and siltstone channers; strongly acid; gradual wavy boundary.

Bt2—15 to 28 inches; yellowish red (5YR 4/6) channery silty clay; moderate medium subangular blocky structure; firm; few fine roots; common faint clay films on faces of peds; 30 percent shale and siltstone channers; strongly acid; gradual wavy boundary.

Bt3—28 to 55 inches; reddish brown (5YR 4/4) channery clay; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; 25 percent shale and siltstone channers; very strongly acid; gradual wavy boundary.

Bt4—55 to 67 inches; reddish brown (5YR 4/4) channery silty clay; weak fine and medium subangular blocky structure; firm; common distinct clay films on faces of peds; 25 percent shale and siltstone channers; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid throughout the A, BA, and Bt horizons; strongly acid to neutral in the C horizon
Content of rock fragments: 5 to 15 percent in the A and Ap horizons; 5 to 40 percent in the BA and Bt horizons; 5 to 50 percent in the C horizon

A or Ap horizon (in undisturbed areas):
Hue—7.5YR or 10YR
Value—3
Chroma—2
Texture—silt loam

A or Ap horizon (in disturbed areas):
Hue—5YR to 10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

BA horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, silty clay

Bt horizon (upper and middle parts):
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, silty clay, clay

Bt horizon (lower part):
Hue—10R to 5YR
Value—3 or 4
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, silty clay, clay

C horizon (if it occurs):
Hue—10R to 5YR
Value—3 to 6
Chroma—3 to 6
Texture—silty clay, clay

Wharton Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow or very slow
Landscape position: On moderately steep and steep convex summits of ridges; throughout the southern part of the county
Parent material: Residuum derived from interbedded shale, siltstone, and fine grained sandstone of the Conemaugh Formation
Slope range: 15 to 35 percent
Classification: Fine-loamy, mixed, active, mesic Aquic Hapludults

Representative Pedon

Wharton silt loam, in a wooded area of Gilpin-Wharton complex, 15 to 35 percent slopes; 1 mile north of West Virginia Route 46 on a ridge between Stonecoal Branch and Berry Branch of Mud River; USGS Mud topographic quadrangle; lat. 38 degrees 06 minutes 36 seconds N. and long. 81 degrees 58 minutes 45 seconds W.

Oi—0 to 2 inches; slightly decomposed leaf litter.
Oe—2 to 3 inches; moderately decomposed leaf litter.
A—3 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 2 percent shale fragments; strongly acid; clear smooth boundary.
BA—5 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; many fine roots; 5 percent shale fragments; strongly acid; gradual smooth boundary.
Bt1—10 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; common fine roots; 5 percent shale fragments; very strongly acid; clear wavy boundary.
Btg1—22 to 30 inches; gray (10YR 6/1) and yellowish brown (10YR 5/4) silty clay loam; common medium prominent red (2.5YR 4/6) soft masses of iron accumulation; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; 2 percent shale fragments; very strongly acid; gradual smooth boundary.
Btg2—30 to 37 inches; gray (10YR 6/1) and light yellowish brown (10YR 6/4) silty clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds; 2 percent shale fragments; very strongly acid; gradual smooth boundary.
Cg—37 to 49 inches; light gray (10YR 7/1) and brownish yellow (10YR 6/6) silt loam; massive; friable; 5 percent shale fragments; very strongly acid; abrupt smooth boundary.
Cr—49 to 55 inches; soft interbedded gray shale and siltstone.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid or strongly acid throughout
Content of rock fragments: 0 to 5 percent in the A and BA horizons; 2 to 10 percent in the Bt horizon; 5 to 10 percent in the BC and C horizons

A horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—silt loam, loam

BA horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—silt loam, loam

Bt horizon:
Hue—10YR
Value—5 or 6

Chroma—4 to 6
Texture—silt loam, loam, silty clay loam

Btg horizon:
Hue—10YR
Value—5 or 6
Chroma—1 to 4
Texture—silt loam, silty clay loam

BC horizon (if it occurs):
Hue—10YR
Value—5 to 7
Chroma—1 to 6
Texture—silt loam, silty clay loam

C horizon:
Hue—10YR
Value—6 or 7
Chroma—1 to 6
Texture—silt loam, silty clay loam

Yeager Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid or rapid
Landscape position: On nearly level low flood plains along streams; in the southern part of the county
Parent material: Recent sandy alluvium
Slope range: 0 to 3 percent
Classification: Sandy, mixed, mesic Typic Udifluvents

Representative Pedon

Yeager fine sandy loam, in an area of Logan County, West Virginia; south of Taplin, between the railroad tracks and the Guyandotte River; USGS Logan topographic quadrangle; lat. 37 degrees 45 minutes 10 seconds N. and long. 81 degrees 53 minutes 41 seconds W.

Oi—0 to 1 inch; slightly decomposed leaf litter.
A—1 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; slightly acid; clear wavy boundary.
C1—5 to 13 inches; fine sandy loam, 60 percent brown (10YR 4/3) stratified with 40 percent black (N 2.5/) coal; massive; very friable; many very fine, fine, medium, and coarse roots; moderately acid; clear wavy boundary.
C2—13 to 27 inches; loamy sand, 60 percent yellowish brown (10YR 5/4) stratified with 40 percent black (N 2.5/) coal; massive; very friable; many very fine, fine, medium, and coarse roots; moderately acid; clear wavy boundary.
C3—27 to 55 inches; sand, 70 percent yellowish brown (10YR 5/6) stratified with 30 percent black (N 2.5/) coal; single grain, loose; few fine and medium roots; strongly acid; clear wavy boundary.
C4—55 to 66 inches; sand, 70 percent yellowish brown (10YR 5/6) stratified with 30 percent black (N 2.5/) coal; single grain, loose; few fine and medium roots; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to neutral throughout
Content of rock fragments: 0 to 20 percent throughout

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—loam, sandy loam, fine sandy loam, loamy fine sand

C horizon:
Hue—10YR or 2.5Y
Value—2 to 6
Chroma—3 to 8
Texture—loamy sand or loamy fine sand with strata of sandy loam, fine sandy loam, fine sand, or medium sand

Formation of the Soils

The origin and development of the soils in Lincoln County are explained in this section. The five major factors of soil formation are identified, and their influence on the soils in the county is described. Also, the morphology of the soils is related to horizon nomenclature and the processes of horizon development.

Factors of Soil Formation

The soils in Lincoln County formed as a result of the interaction between the five major factors of soil formation—parent material, time, topography, living organisms, and climate. Each factor modifies the effect of the others. The relative influence of each factor varies from place to place, and in some places one factor can dominate the formation of a soil. Parent material, topography, and time have resulted in the major differences among the soils in the county. Climate and living organisms have generally influenced soil formation uniformly throughout the survey area.

Parent Material

Parent material is the unconsolidated geologic material from which the soils formed. The nature of the parent material influences the physical and chemical properties of the soil as well as the rate at which soil formation takes place. The soils in Lincoln County formed in four types of parent material—residuum, colluvium, recent alluvium, and a mixture of soil and geologic material.

The soils formed in residuum are mostly on ridgetops. This residuum is derived mainly from sedimentary rocks of the Pennsylvanian period, mainly sandstone, siltstone, and shale that have intermittent coal seams. Thin beds of limestone are included in some places. Examples of soils that formed in residuum include those in the Gilpin and Matewan series.

The soils formed in colluvial material are on hillsides and footslopes. The colluvium was deposited by water and gravity over long periods of time and covers nearly the lower third of the hillsides in the county. It generally is sandy or loamy and includes varying amounts of coarse fragments. It ranges in thickness from about 40 inches on the upper part of the hillside to more than 60 inches on the lower part and on head slopes in coves. In some places, particularly on toeslopes, colluvial material is 30 feet or more thick. Examples of soils that formed in colluvium are those in the Cloverlick and Highsplint series.

The soils formed in recent alluvial material are on low flood plains and on stream terraces. The recent or local alluvial deposits consist of material that has been washed from uplands and deposited by streams. The Grigsby soils in the southern part of the county formed in recent alluvial material.

Fiveblock, Kaymine, and Cedarcreek soils formed in soil material and fragments of bedrock that were mixed together during mining operations. The mixing of this material in varying proportions can exhibit marked heterogeneity of soils over short distances in regard to parent material, strata, texture, reaction, color, and content and size of fragments.

Time

The length of time that parent material has been in place and exposed to the active forces of climate, as well as plant and animal life, strongly influences the nature of the soil. The time required for a soil to form depends on the other soil-forming factors. For example, less time is required for a well developed soil to form in a warm, moist climate than in a cool, dry climate if all other factors are the same.

Most of the soils in Lincoln County are relatively young. As weathering processes act upon the exposed rocks, mostly on points and ridges, the residue is subjected to the forces of water and gravity. Weathered soil material and rock fragments are carried downslope and deposited as colluvium. As the colluvium accumulates, the heavy weight of the colluvium, steep angle of slope, and water seeps along bedrock tend to move the mass very slowly and irregularly downslope onto the flood plain. Soil is removed from the valleys by the action of the streams. Thus, the valleys slowly become wider.

Relatively young soils on ridgetops and side slopes have developed soil structure and a B horizon that is well defined by color, but they have little illuvial clay accumulation. Such soils in Lincoln County are classified as Typic Dystrudepts. They include the Hazleton soils.

Some soils on the less sloping hillsides have a thick, well defined B horizon that has a significant accumulation of illuvial clay. Examples are the Shelocta soils, which are classified as Typic Hapludults.

Immature soils have little profile development and have retained many of the characteristics of the original parent material. In Lincoln County, the immature soils are primarily on flood plains where the seasonal high water table and deposition of fresh materials prevent the development of distinct soil horizons. They include the Yeager soils. Immature soils are also on side slopes where runoff and geologic erosion prevent profile development.

The older soils on terraces, such as those in the Cotaco and Allegheny series, formed in water-deposited material but do not currently receive a significant amount of deposition. They are leached and weathered, and the content of illuvial clay depends upon their position in relation to the stream and in situ weathering of primary and secondary minerals.

Topography

Lincoln County is in the central part of the Appalachian Basin. The Cumberland Plateau and Mountains and Central Allegheny Plateau are physiographic sections in the county. These physiographic sections contain deeply dissected sandstone, siltstone, and shale plateaus with some layers of calcareous rocks in areas of the Central Allegheny Plateau. The rocks are of various hardness and, together with the interbedded coalbeds, have weathered to form a benched landscape on the uplands with a dendritic drainage pattern. The topography of these sections has been described in further detail in the section entitled “General Nature of the County.”

The effect that topography has on the soils in Lincoln County is mainly through its influence on the amount of water moving through the soil, the amount and rate of runoff, and the rate of erosion. Large amounts of water have moved through the gently sloping and strongly sloping soils in the county; such water movement favored the formation of deep soils that have a well developed profile. On steep and very steep hillsides, less water moved through the soils and more water ran off the surface. The soil material was washed away almost as rapidly as it formed. As a result, the soils on many of the steeper hillsides are shallower over bedrock than the soils on the more gentle slopes.

Natural differences in elevation and shape of landforms account for some differences in the kinds of soils that formed in the survey area. The soils formed in residuum are mostly at the higher elevations, ridges, and points. Most soils on

hillsides formed in colluvial material. The soils on flood plains formed in alluvium derived from soils underlain by sandstone, siltstone, and shale.

Surface mining has complicated the effect of relief as a soil-forming factor. Reshaping the land and making new landforms has changed drainage relationships and affected the rate of chemical and physical processes of soil formation.

Living Organisms

All living organisms, including vegetation, bacteria, fungi, and animals, actively affect the formation of soils. Vegetation generally supplies organic material, which decomposes and becomes part of a dark surface layer. The residues of plants and animals remain on and in the soil material. As these residues decay and are mixed with mineral material by living organisms, the first evidence of layering occurs. The upper part of the soil mass assumes structural stability due to the presence of organic matter. Bacteria and fungi decompose organic material and release plant nutrients into the soil. Mixing of the soil by the action of worms, insects, and burrowing animals improves the soil tilth, aeration, drainage, and porosity.

Human activities also affect soil formation. Tillage, management practices, mining, burning, or clearcutting forests affect the physical properties of soils. Soils can be altered chemically by the application of lime, fertilizer, insecticide, and herbicide. Soil compaction and an increased rate of runoff can result if heavy equipment is used in areas of wet soils. Mixing and moving soil material from one place to another can also affect both physical and chemical properties of soils.

Climate

From an overall standpoint, climate is one of the most important factors in soil formation. It determines in no small degree the nature of the weathering that occurs. For example, temperature and precipitation exert profound influences on the rates of chemical and physical processes that are the essential means by which profile development is effected.

Climatic influences are also expressed through or in combination with the other factors. Thus, much of the influence of climate is due to the measure of control that it exercises over natural vegetation. In humid regions, plentiful rainfall provides an environment favorable for the growth of trees. In contrast, grasslands are the dominant native vegetation in semiarid regions.

Climate is relatively uniform throughout most of the survey area. Areas at the higher elevations in the southern part of the county tend to have a slighter lower mean annual temperature (1 or 2 degrees) and a few inches higher mean annual precipitation. The soils on uplands are mesic, or medium in soil temperature, and are in a udic or humid moisture regime. South- and west-facing slopes receive more direct radiation from the sun and are typically hotter and drier than the north- and east-facing slopes. The coolest sites are the lower slopes that face east to north and the concave draws on the head slopes of coves. The soils in these cooler areas tend to have a thicker, darker surface layer that contains a higher percentage of organic matter than the soils on the warmer slopes.

Morphology of the Soils

The results of the soil-forming processes are evident in the different layers, or horizons, in the soil profile. The profile extends from the soil surface downward to material that has been changed little by the soil-forming processes. After the morphological characteristics of the horizons have been described, it becomes a convenience for purposes of communication to classify and name each horizon. Horizon names are not mutually exclusive, and a great deal of interpretation on the part of the soil scientist is involved in naming a horizon. Horizon designations differ

somewhat from country to country. In the United States, soil horizons are designated by a code of letter and numbers. Master or major horizons are designated by capital letters. Subdivisions of master horizons are designated by numerical suffixes and horizon characteristics or features by lowercase letters.

The A horizon is the surface layer. Typically, it is the layer of maximum accumulation of organic material and microbial activity. It is darkened by humified organic material and is generally the darkest layer in the soil profile. It is also the layer of maximum leaching, or eluviation, of clay and iron. If considerable leaching has taken place and organic matter has not darkened the soil material, an E horizon is formed. Consequently, this horizon is normally the lightest colored horizon in the profile.

The B horizon underlies the A horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, humus, or other compounds leached from the surface layer. Due to the relatively higher clay content, the B horizon generally has a more firm, moist consistence than the A horizon.

For soils to have a distinct subsoil, they must be leached of lime and more soluble materials; however, in some soils, such as those in the Cloverlick and Highsplint series, the B horizon is formed mainly by the alteration of the original material rather than by illuviation. The alteration can be caused by the weathering of the parent material; the release of iron, which gives the soil a rusty color; or the development of soil structure instead of the original rock or sediment structure.

The naturally well drained soils in the survey area generally have a yellowish brown or strong brown subsoil. These colors come from finely divided iron oxide minerals that coat the sand, silt, or clay particles. These iron oxides formed from iron released during the weathering of silica minerals in the present soil or in the parent material in which the soil developed.

The C horizon is below the A and B horizons. It consists of material that is little altered by the soil-forming processes, but it can be modified by weathering. In young soils, such as those formed in recent alluvium or in deposited fill material, the C horizon is near or at the soil surface. In these soils, the B horizon, and in places even the A horizon, does not occur.

Many processes have influenced the formation of horizons in the soils in Lincoln County. Among these are the accumulation of organic matter, the leaching of soluble constituents, the chemical reduction and movement of iron, the formation of soil structure, and the formation and translocation of clay minerals. These processes, which often operate simultaneously, have been going on for thousands of years.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.
Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.
AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.
Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.
Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.
Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.
Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.
Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.
Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.
Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.
Aspect. The direction in which a slope faces.
Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.
Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6

Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Bajada. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliquivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque. A semicircular, concave, bowllike area that has steep faces primarily resulting from glacial ice and snow abrasion.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Congeliturbate. Soil material disturbed by frost action.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the

hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the Earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine earth. That portion of the soil consisting of particles less than 2 millimeters in diameter. Particles and rock fragments 2 millimeters in diameter or larger are not included.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Formation. The basic rock-stratigraphic unit in the local classification of rock (commonly a sedimentary stratum or strata, but also igneous and metamorphic rocks) generally characterized by some degree of internal lithologic homogeneity of distinctive lithologic features (such as chemical composition, structures, texture, or general kind of fossils), by a prevailing (but not necessarily tabular) shape, and by mappability at the Earth's surface (at scales of the order of 1:25,000) or traceability in the subsurface.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head out. To form a flower head.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum

rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landform. Any physical, recognizable form or feature of the Earth's surface, having a characteristic shape, and produced by natural causes; it includes minor forms such as hill, valley, and slope.

Landscape. The distinct association of landforms, especially as modified by geologic forces, that can be seen in a single view.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Lithic contact. The boundary between soil and coherent underlying material. The underlying material must be sufficiently coherent when moist to make hand-digging with a spade impractical, although the material may be chipped or scraped with a spade. If it consists of a single mineral, it must have a hardness by Mohs scale of 3 or more; otherwise, chunks of gravel size that can be broken out must not disperse during 15 hours of shaking in water or in sodium hexametaphosphate solution.

Lithochromic mottle. High- or low-chroma colors (Munsell) in the soil profile that are not related to drainage or saturation from water (redoximorphic features) but are the result of weathering of the parent material.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Pebble. A rounded or angular fragment of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. A collection of pebbles is referred to as gravel.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permafrost. Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the Earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 to 75 percent

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste.

It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the Earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stratified. Arranged in layers (strata). The term refers to geologic material. Layers in soils that result from soil formation processes are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice

common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topography. The relative positions and elevations of the natural or constructed features of an area that describe the configuration of its surface.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated, relatively large, externally drained depression of the Earth's surface that is primarily developed by stream erosion.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the Earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Logan, West Virginia.)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	44.0	25.9	35.0	73	-3	70	3.42	1.94	4.67	8	6.8
February-	48.8	27.6	38.2	76	3	100	3.52	2.42	4.58	8	5.6
March----	58.2	34.3	46.3	84	13	245	4.17	2.48	5.57	9	2.2
April----	69.1	41.9	55.5	90	25	467	3.60	2.03	5.11	8	.0
May------	77.1	51.4	64.3	92	34	746	5.07	3.22	6.83	9	.0
June-----	84.2	61.2	72.7	96	46	977	4.78	2.91	6.59	8	.0
July-----	87.4	65.9	76.6	97	53	1,133	5.00	3.35	6.56	8	.0
August---	86.1	64.7	75.4	97	52	1,095	3.98	2.34	5.66	6	.0
September	80.0	57.8	68.9	95	41	866	3.49	1.81	5.14	6	.0
October--	68.9	45.2	57.1	86	29	525	2.98	1.77	4.09	6	.0
November-	57.6	35.7	46.6	80	18	239	3.30	1.98	4.49	6	.2
December-	46.9	29.1	38.0	72	6	104	3.66	2.33	4.64	7	2.6
Yearly:											
Average-	67.4	45.1	56.2	---	---	---	---	---	---	---	---
Extreme-	---	---	---	98	-6	---	---	---	---	---	---
Total---	---	---	---	---	---	6,567	46.97	34.27	53.59	89	17.5

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Logan, West Virginia.)

Probability	Temperature		
	24^{o} F or lower	28^{o} F or lower	32^{o} F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 3	Apr. 19	May 1
2 years in 10 later than--	Mar. 26	Apr. 14	Apr. 25
5 years in 10 later than--	Mar. 12	Apr. 4	Apr. 14
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 4	Oct. 20	Oct. 16
2 years in 10 earlier than--	Nov. 11	Oct. 26	Oct. 21
5 years in 10 earlier than--	Nov. 24	Nov. 7	Oct. 30

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Logan, West Virginia.)

Probability	Daily minimum temperature during growing season		
	Higher than 24^{o} F	Higher than 28^{o} F	Higher than 32^{o} F
	Days	Days	Days
9 years in 10	225	191	173
8 years in 10	236	200	181
5 years in 10	256	216	197
2 years in 10	276	231	213
1 year in 10	287	240	222

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AgB	Allegheny loam, bedrock substratum, 3 to 8 percent slopes	141	*
AgC	Allegheny loam, bedrock substratum, 8 to 15 percent slopes	303	0.1
BeD	Beech loam, 15 to 25 percent slopes	124	*
BeE	Beech loam, 25 to 35 percent slopes	506	0.2
BSF	Berks-Shelocta association, very steep, extremely stony	960	0.3
CeF	Cedarcreek-Rock outcrop complex, very steep, extremely stony	141	*
Ch	Chagrin loam, frequently flooded	1,601	0.6
CoA	Cotaco loam, 0 to 3 percent slopes	83	*
CoB	Cotaco loam, 3 to 8 percent slopes	285	0.1
CuB	Cotaco-Urban land complex, 3 to 8 percent slopes	54	*
CuC	Cotaco-Urban land complex, 8 to 15 percent slopes	36	*
DlD	Dormont-Latham complex, 15 to 25 percent slopes	167	*
DlE	Dormont-Latham complex, 25 to 35 percent slopes	152	*
GiD	Gilpin silt loam, 15 to 25 percent slopes	1,039	0.4
GiE	Gilpin silt loam, 25 to 35 percent slopes	592	0.2
GlF	Gilpin silt loam, 35 to 65 percent slopes, very stony	12,903	4.6
GmE	Gilpin-Matewan complex, 25 to 35 percent slopes, very stony	5,836	2.1
GpC	Gilpin-Upshur complex, 8 to 15 percent slopes	837	0.3
GpD	Gilpin-Upshur complex, 15 to 25 percent slopes	8,899	3.2
GpE	Gilpin-Upshur complex, 25 to 35 percent slopes	21,309	7.6
GpF	Gilpin-Upshur complex, 35 to 65 percent slopes	35,059	12.5
GrE	Gilpin-Wharton complex, 15 to 35 percent slopes	3,899	1.4
Gs	Grigsby fine sandy loam, frequently flooded	2,296	0.8
Gt	Grigsby loam, occasionally flooded	446	0.2
Gu	Guyan silt loam, rarely flooded	74	*
HMF	Highsplint-Matewan-Cloverlick association, very steep, extremely stony	77,330	27.5
HuE	Highsplint-Urban land complex, 15 to 35 percent slopes, very stony	24	*
Hy	Holly loam, occasionally flooded	132	*
KaA	Kanawha silt loam, 0 to 3 percent slopes, protected	545	0.2
KaB	Kanawha silt loam, 3 to 8 percent slopes, protected	445	0.2
KfB	Kaymine and Fiveblock soils, 0 to 8 percent slopes, extremely stony	606	0.2
KfF	Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony	1,921	0.7
KmF	Kaymine-Cedarcreek-Matewan complex, very steep, extremely stony	134	*
LgC	Latham-Gilpin complex, 8 to 15 percent slopes	1,397	0.5
LgD	Latham-Gilpin complex, 15 to 25 percent slopes	2,182	0.8
LiD	Lily sandy loam, 15 to 25 percent slopes, very stony	862	0.3
LiE	Lily sandy loam, 25 to 35 percent slopes, very stony	659	0.2
Lo	Lobdell loam, occasionally flooded	887	0.3
MlE	Matewan-Latham complex, 25 to 35 percent slopes, very stony	551	0.2
MPF	Matewan-Pineville-Guyandotte association, very steep, extremely stony	949	0.3
Mr	Middlebury loam, frequently flooded	441	0.2
Ms	Moshannon silt loam, occasionally flooded	499	0.2
Ne	Nelse silt loam, 3 to 25 percent slopes, frequently flooded	737	0.3
Or	Orrville loam, occasionally flooded	878	0.3
PvE	Pineville channery loam, 25 to 35 percent slopes, extremely stony	448	0.2
RmF	Rayne-Matewan complex, 35 to 65 percent slopes, very stony	66,376	23.6
Sc	Senecaville silt loam, occasionally flooded	51	*
SeA	Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded	518	0.2
SfB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded	2,310	0.8
ShF	Sharpcrest-Hazleton complex, 35 to 75 percent slopes, extremely bouldery	13,817	4.9
SkC	Shelocta-Beech complex, 8 to 15 percent slopes	660	0.2
SlD	Shelocta-Beech complex, 15 to 25 percent slopes, very stony	549	0.2
SlE	Shelocta-Beech complex, 25 to 35 percent slopes, very stony	653	0.2
Sm	Skidmore gravelly sandy loam, frequently flooded	50	*
Ud	Udorthents, smoothed	867	0.3
UkB	Urban land-Kanawha complex, 0 to 8 percent slopes, protected	369	0.1
UuB	Udorthents-Urban land complex, 0 to 8 percent slopes, rarely flooded	328	0.1
Uw	Udorthents, earthen dam	28	*

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
VaC	Vandalia silt loam, 8 to 15 percent slopes	204	*
VnD	Vandalia silt loam, 15 to 25 percent slopes, very stony	1,044	0.4
VnE	Vandalia silt loam, 25 to 35 percent slopes, very stony	2,222	0.8
W	Water	1,498	0.5
Yg	Yeager fine sandy loam, frequently flooded	87	*
	Total	281,000	100.0

* Less than 0.05 percent. The combined extent of the soils assigned an asterisk in the "Percent" column is about 0.5 percent of the survey area.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Tobacco
		Tons	Bu	Tons	AUM	Lbs
AgB:						
Allegheny	2e	4.50	115.00	3.50	---	3,000
AgC:						
Allegheny	3e	4.00	105.00	3.50	---	2,750
BeD:						
Beech	4e	3.00	80.00	2.50	6.50	---
BeE:						
Beech	6e	---	---	---	---	---
BSF:						
Berks	7s	---	---	---	---	---
Shelocta	7s	---	---	---	---	---
CeF:						
Cedarcreek	7s	---	---	---	---	---
Rock outcrop	7s	---	---	---	---	---
Ch:						
Chagrin	2w	5.00	125.00	4.00	---	---
CoA:						
Cotaco	2w	---	110.00	3.00	6.00	2,400
CoB:						
Cotaco	2e	---	110.00	3.00	6.00	2,400
CuB:						
Cotaco	---	---	110.00	3.00	6.00	2,400
Urban land	8s	---	---	---	---	---
CuC:						
Cotaco	---	---	110.00	3.00	6.00	2,400
Urban land	8s	---	---	---	---	---
DlD:						
Dormont	4e	3.00	80.00	2.50	6.50	---
Latham	6e	---	---	---	---	---
DlE:						
Dormont	6e	---	---	---	---	---
Latham	6e	---	---	---	---	---
GiD:						
Gilpin	4e	3.00	80.00	2.50	---	2,000
GiE:						
Gilpin	6e	---	---	---	---	---
GlF:						
Gilpin	7s	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Tobacco
		Tons	Bu	Tons	AUM	Lbs
GmE:						
Gilpin	6s	---	---	---	---	---
Matewan	6s	---	---	---	---	---
GpC:						
Gilpin	3e	3.50	90.00	3.00	---	2,000
Upshur	3e	3.50	90.00	3.00	---	2,000
GpD:						
Gilpin	4e	3.00	85.00	2.50	---	---
Upshur	4e	3.00	85.00	2.50	---	---
GpE:						
Gilpin	6e	---	---	---	---	---
Upshur	6e	---	---	---	---	---
GpF:						
Gilpin	7e	---	---	---	---	---
Upshur	7e	---	---	---	---	---
GrE:						
Gilpin	6e	---	---	---	---	---
Wharton	6e	---	---	---	---	---
Gs:						
Grigsby	2w	---	120.00	3.00	7.00	2,500
Gt:						
Grigsby	2w	---	130.00	4.00	8.00	3,000
Gu:						
Guyan	3w	---	105.00	3.50	---	---
HMF:						
Highsplint	7s	---	---	---	---	---
Matewan	7s	---	---	---	---	---
Cloverlick	7s	---	---	---	---	---
HuE:						
Highsplint	6s	---	---	---	---	---
Urban land	8s	---	---	---	---	---
Hy:						
Holly	3w	---	80.00	3.50	7.00	---
KaA:						
Kanawha	1	5.00	135.00	3.50	---	3,000
KaB:						
Kanawha	2e	5.00	130.00	3.50	---	3,000
KfB:						
Kaymine	6s	---	---	---	---	---
Fiveblock	6s	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Tobacco
		Tons	Bu	Tons	AUM	Lbs
KfF:						
Kaymine-----------------	7s	---	---	---	---	---
Fiveblock---------------	7s	---	---	---	---	---
KmF:						
Kaymine-----------------	7s	---	---	---	---	---
Cedarcreek--------------	7s	---	---	---	---	---
Matewan-----------------	7s	---	---	---	---	---
LgC:						
Latham------------------	3e	---	85.00	3.00	---	---
Gilpin------------------	3e	3.50	85.00	3.00	7.00	---
LgD:						
Latham------------------	4e	---	---	---	---	---
Gilpin------------------	4e	3.00	80.00	2.50	6.00	---
LiD:						
Lily--------------------	4e	3.00	70.00	2.50	---	1,900
LiE:						
Lily--------------------	6e	---	---	---	3.50	---
Lo:						
Lobdell-----------------	2w	---	120.00	4.50	---	---
MlE:						
Matewan-----------------	6e	---	---	---	---	---
Latham------------------	6e	---	---	---	---	---
MPF:						
Matewan-----------------	7s	---	---	---	---	---
Pineville---------------	7s	---	---	---	---	---
Guyandotte--------------	7s	---	---	---	---	---
Mr:						
Middlebury--------------	2w	4.50	120.00	3.50	6.50	---
Ms:						
Moshannon---------------	2w	5.00	130.00	3.50	---	3,000
Ne:						
Nelse-------------------	6e	---	---	---	4.00	---
Or:						
Orrville----------------	2w	---	110.00	4.50	---	---
PvE:						
Pineville---------------	7s	---	---	---	---	---
RmF:						
Rayne-------------------	7e	---	---	---	---	---
Matewan-----------------	7e	3.00	70.00	2.50	5.50	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Tobacco
		Tons	Bu	Tons	AUM	Lbs
Sc:						
Senecaville	2w	4.50	130.00	3.50	---	2,000
SeA:						
Sensabaugh	2w	4.50	125.00	3.50	---	2,600
SfB:						
Sensabaugh	2e	4.50	120.00	3.50	---	2,500
ShF:						
Sharpcrest	7s	4.00	95.00	3.00	8.00	---
Hazleton	7s	---	---	---	---	---
SkC:						
Shelocta	3e	---	---	---	---	---
Beech	3e	3.00	80.00	2.50	---	---
SlD:						
Shelocta	4e	---	---	---	---	---
Beech	4e	3.00	80.00	2.50	---	---
SlE:						
Shelocta	6e	---	---	---	---	---
Beech	6e	3.00	80.00	2.50	---	---
Sm:						
Skidmore	2w	3.00	80.00	2.50	5.50	2,500
Ud:						
Udorthents	---	---	---	---	---	---
UkB:						
Urban land	8s	---	---	---	---	---
Kanawha	---	---	---	---	---	---
UuB:						
Udorthents	---	---	---	---	---	---
Urban land	8s	---	---	---	---	---
Uw:						
Udorthents	---	---	---	---	---	---
VaC:						
Vandalia	3e	4.50	100.00	3.00	---	2,500
VnD:						
Vandalia	4e	4.00	90.00	2.50	---	---
VnE:						
Vandalia	6e	---	---	---	---	---
Yg:						
Yeager	2w	---	95.00	3.50	6.00	2,000

Table 6.--Capability Class and Subclass

Capability class	Capability subclass	Acreage
Unclassified	---	2,900
1	---	463
2	e	2,514
2	w	4,172
3	e	2,887
3	w	63
4	e	9,716
4	w	112
5	w	2,505
6	e	18,782
6	s	9,957
7	e	26,294
7	s	137,510

Table 7.--Prime Farmland and Other Important Farmlands

(Only the soils considered prime farmland or farmland of statewide importance or local importance are listed. Urban or built-up areas of the soils listed are not considered prime farmland or important farmland.)

Map symbol	Map unit name
Prime farmland:	
AgB	Allegheny loam, bedrock substratum, 3 to 8 percent slopes
CoA	Cotaco loam, 0 to 3 percent slopes
Gt	Grigsby loam, occasionally flooded
KaA	Kanawha silt loam, 0 to 3 percent slopes, protected
KaB	Kanawha silt loam, 3 to 8 percent slopes, protected
Lo	Lobdell loam, occasionally flooded
Ms	Moshannon silt loam, occasionally flooded
Sc	Senecaville silt loam, occasionally flooded
SeA	Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded
SfB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded
Farmland of statewide importance:	
AgC	Allegheny loam, bedrock substratum, 8 to 15 percent slopes
BeD	Beech loam, 15 to 25 percent slopes
Ch	Chagrin loam, frequently flooded
CoB	Cotaco loam, 3 to 8 percent slopes
DlD	Dormont-Latham complex, 15 to 25 percent slopes
GiD	Gilpin silt loam, 15 to 25 percent slopes
GpC	Gilpin-Upshur complex, 8 to 15 percent slopes
GpD	Gilpin-Upshur complex, 15 to 25 percent slopes
Gu	Guyan silt loam, rarely flooded
LgC	Latham-Gilpin complex, 8 to 15 percent slopes
LgD	Latham-Gilpin complex, 15 to 25 percent slopes
Mr	Middlebury loam, frequently flooded
Or	Orrville loam, occasionally flooded
SkC	Shelocta-Beech complex, 8 to 15 percent slopes
Sm	Skidmore gravelly sandy loam, frequently flooded
VaC	Vandalia silt loam, 8 to 15 percent slopes
Farmland of local importance:	
Gs	Grigsby fine sandy loam, frequently flooded
Hy	Holly loam, occasionally flooded
Ne	Nelse silt loam, 3 to 25 percent slopes, frequently flooded
Yg	Yeager fine sandy loam, frequently flooded

Table 8a.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny-----------	90	Somewhat limited		Very limited	
		Too acid	0.73	Low adsorption	1.00
				Too acid	1.00
AgC:					
Allegheny-----------	90	Somewhat limited		Very limited	
		Too acid	0.73	Low adsorption	1.00
		Slope	0.63	Too acid	1.00
				Slope	0.63
BeD:					
Beech---------------	80	Not rated		Not rated	
BeE:					
Beech---------------	70	Not rated		Not rated	
BSF:					
Berks---------------	40	Not rated		Not rated	
Shelocta------------	35	Not rated		Not rated	
CeF:					
Cedarcreek----------	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Too acid	0.96
		Cobble content	0.87	Cobble content	0.87
Rock outcrop--------	15	Not rated		Not rated	
Ch:					
Chagrin-------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Too acid	0.11	Too acid	0.42
CoA:					
Cotaco--------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.50	Too acid	0.99
CoB:					
Cotaco--------------	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.50	Too acid	0.99
CuB:					
Cotaco--------------	40	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Too acid	0.50	Too acid	0.99
Urban land----------	25	Not rated		Not rated	

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CuC:					
Cotaco	40	Very limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slope	0.63	Too acid	0.99
		Too acid	0.50	Slope	0.63
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
		Too acid	0.32	Depth to saturated zone	0.96
Latham	35	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
DlE:					
Dormont	50	Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
		Too acid	0.32	Depth to saturated zone	0.96
Latham	25	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
GiD:					
Gilpin	70	Not rated		Not rated	
GiE:					
Gilpin	80	Not rated		Not rated	
GlF:					
Gilpin	70	Not rated		Not rated	
GmE:					
Gilpin	40	Not rated		Not rated	
Matewan	35	Not rated		Not rated	
GpC:					
Gilpin	55	Not rated		Not rated	
Upshur	25	Not rated		Not rated	
GpD:					
Gilpin	55	Not rated		Not rated	
Upshur	25	Not rated		Not rated	

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
GpE:					
Gilpin	50	Not rated		Not rated	
Upshur	20	Not rated		Not rated	
GpF:					
Gilpin	50	Not rated		Not rated	
Upshur	25	Not rated		Not rated	
GrE:					
Gilpin	45	Not rated		Not rated	
Wharton	30	Not rated		Not rated	
Gs:					
Grigsby	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
Gt:					
Grigsby	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
Gu:					
Guyan	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low adsorption	0.46	Too acid	0.91
		Too acid	0.32	Flooding	0.40
HMF:					
Highsplint	35	Not rated		Not rated	
Matewan	25	Not rated		Not rated	
Cloverlick	15	Not rated		Not rated	
HuE:					
Highsplint	45	Not rated		Not rated	
Urban land	35	Not rated		Not rated	
Hy:					
Holly	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Leaching	0.70	Flooding	1.00
		Flooding	0.60	Too acid	0.31
KaA:					
Kanawha	85	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Low adsorption	0.02		
KaB:					
Kanawha	70	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Low adsorption	0.02		

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
KfB:					
Kaymine	45	Very limited		Somewhat limited	
		Large stones content	1.00	Cobble content	0.12
		Cobble content	0.12		
Fiveblock	25	Very limited		Somewhat limited	
		Large stones content	1.00	Cobble content	0.12
		Cobble content	0.12	Droughty	0.11
		Droughty	0.11	Low adsorption	0.05
KfF:					
Kaymine	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Cobble content	0.12
		Cobble content	0.12		
Fiveblock	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Cobble content	0.12
		Cobble content	0.12	Droughty	0.11
KmF:					
Kaymine	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Cobble content	0.12
		Cobble content	0.12		
Cedarcreek	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	1.00	Too acid	0.96
		Cobble content	0.87	Cobble content	0.87
Matewan	20	Not rated		Not rated	
LgC:					
Latham	55	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.96	Low adsorption	1.00
		Droughty	0.77	Too acid	0.99
Gilpin	30	Not rated		Not rated	
LgD:					
Latham	40	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
Gilpin	35	Not rated		Not rated	
LiD:					
Lily	70	Not rated		Not rated	

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
LiE:					
Lily	75	Not rated		Not rated	
Lo:					
Lobdell	75	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Flooding	1.00
		Flooding	0.60	Too acid	0.91
		Too acid	0.32	Depth to saturated zone	0.86
MlE:					
Matewan	45	Not rated		Not rated	
Latham	30	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Low adsorption	1.00
		Depth to saturated zone	0.96	Slope	1.00
MPF:					
Matewan	50	Not rated		Not rated	
Pineville	25	Not rated		Not rated	
Guyandotte	25	Not rated		Not rated	
Mr:					
Middlebury	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Too acid	0.11	Too acid	0.42
Ms:					
Moshannon	70	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
		Too acid	0.08	Too acid	0.31
Ne:					
Nelse	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slope	1.00	Slope	1.00
Or:					
Orrville	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00
		Too acid	0.01	Too acid	0.03
PvE:					
Pineville	70	Not rated		Not rated	
RmF:					
Rayne	60	Not rated		Not rated	
Matewan	25	Not rated		Not rated	

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Sc:					
Senecaville----------	90	Very limited		Very limited	
		Depth to saturated zone	0.99	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	0.99
		Too acid	0.11	Too acid	0.42
SeA:					
Sensabaugh----------	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
SfB:					
Sensabaugh----------	80	Not limited		Somewhat limited	
				Flooding	0.40
ShF:					
Sharpcrest----------	50	Not rated		Not rated	
Hazleton------------	25	Not rated		Not rated	
SkC:					
Shelocta------------	60	Not rated		Not rated	
Beech---------------	30	Not rated		Not rated	
SlD:					
Shelocta------------	60	Not rated		Not rated	
Beech---------------	40	Not rated		Not rated	
SlE:					
Shelocta------------	60	Not rated		Not rated	
Beech---------------	40	Not rated		Not rated	
Sm:					
Skidmore------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Droughty	0.26	Too acid	0.42
		Too acid	0.11	Droughty	0.26
Ud:					
Udorthents----------	85	Not rated		Not rated	
UkB:					
Urban land----------	50	Not rated		Not rated	
Kanawha-------------	35	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Low adsorption	0.02		
UuB:					
Udorthents----------	50	Not rated		Not rated	
Urban land----------	25	Not rated		Not rated	
Uw:					
Udorthents----------	100	Not rated		Not rated	

Table 8a.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
VaC:					
Vandalia------------	80	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Slope	0.63	Slope	0.63
		Runoff	0.40	Too acid	0.42
VnD:					
Vandalia------------	85	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slope	1.00
		Runoff	0.40	Too acid	0.42
VnE:					
Vandalia------------	70	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slope	1.00
		Runoff	0.40	Too acid	0.42
Yg:					
Yeager--------------	90	Not rated		Not rated	

Table 8b.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Too steep for surface application	0.68	Too acid	1.00
				Depth to bedrock	0.42
AgC:					
Allegheny	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	0.78	Too acid	1.00
BeD:					
Beech	80	Not rated		Not rated	
BeE:					
Beech	70	Not rated		Not rated	
BSF:					
Berks	40	Not rated		Very limited	
				Seepage	1.00
				Depth to bedrock	1.00
				Too steep for surface application	1.00
				Too acid	0.91
Shelocta	35	Not rated		Very limited	
				Seepage	1.00
				Too steep for surface application	1.00
				Too acid	0.91
CeF:					
Cedarcreek	70	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.96	Cobble content	1.00
Rock outcrop	15	Not rated		Not rated	
Ch:					
Chagrin	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Too acid	0.42	Seepage	1.00
				Too acid	0.42

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
CoA:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.99	Depth to saturated zone	0.99
				Too acid	0.99
CoB:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.99	Depth to saturated zone	0.99
		Too steep for surface application	0.68	Too acid	0.99
CuB:					
Cotaco	40	Very limited		Very limited	
		Depth to saturated zone	0.99	Seepage	1.00
		Too acid	0.99	Depth to saturated zone	0.99
		Too steep for surface application	0.08	Too acid	0.99
Urban land	25	Not rated		Not rated	
CuC:					
Cotaco	40	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Too steep for surface application	1.00
		Too acid	0.99	Depth to saturated zone	0.99
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Depth to saturated zone	0.96	Depth to saturated zone	0.96
Latham	35	Very limited		Very limited	
		Slow water movement	1.00	Depth to bedrock	1.00
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
DlE:					
Dormont-------------	50	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Depth to saturated zone	0.96	Depth to saturated zone	0.96
Latham--------------	25	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Depth to bedrock	1.00
GiD:					
Gilpin--------------	70	Not rated		Not rated	
GiE:					
Gilpin--------------	80	Not rated		Not rated	
GlF:					
Gilpin--------------	70	Not rated		Not rated	
GmE:					
Gilpin--------------	40	Not rated		Not rated	
Matewan-------------	35	Not rated		Not rated	
GpC:					
Gilpin--------------	55	Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated	
GpD:					
Gilpin--------------	55	Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated	
GpE:					
Gilpin--------------	50	Not rated		Not rated	
Upshur--------------	20	Not rated		Not rated	
GpF:					
Gilpin--------------	50	Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated	
GrE:					
Gilpin--------------	45	Not rated		Not rated	
Wharton-------------	30	Not rated		Not rated	

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
Gs:					
Grigsby	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
				Seepage	1.00
Gt:					
Grigsby	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
				Seepage	1.00
Gu:					
Guyan	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.91	Seepage	1.00
		Low adsorption	0.46	Too acid	0.91
HMF:					
Highsplint	35	Not rated		Not rated	
Matewan	25	Not rated		Not rated	
Cloverlick	15	Not rated		Very limited	
				Seepage	1.00
				Too steep for surface application	1.00
				Too acid	0.91
HuE:					
Highsplint	45	Not rated		Not rated	
Urban land	35	Not rated		Not rated	
Hy:					
Holly	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	1.00
		Too acid	0.31	Seepage	1.00
KaA:					
Kanawha	85	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Low adsorption	0.02	Too acid	0.42
				Low adsorption	0.02
KaB:					
Kanawha	70	Somewhat limited		Very limited	
		Too steep for surface application	0.68	Seepage	1.00
		Too acid	0.42	Too acid	0.42
		Low adsorption	0.02	Low adsorption	0.02
KfB:					
Kaymine	45	Somewhat limited		Very limited	
		Cobble content	0.12	Seepage	1.00
		Too steep for surface application	0.08	Cobble content	1.00

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
KfB:					
Fiveblock-----------	25	Somewhat limited		Very limited	
		Cobble content	0.12	Seepage	1.00
		Droughty	0.11	Cobble content	0.45
		Too steep for surface application	0.08	Low adsorption	0.05
KfF:					
Kaymine-------------	50	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Cobble content	0.12	Cobble content	1.00
Fiveblock-----------	25	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Cobble content	0.12	Cobble content	0.45
KmF:					
Kaymine-------------	35	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Cobble content	0.12	Cobble content	1.00
Cedarcreek----------	25	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.96	Cobble content	1.00
Matewan-------------	20	Not rated		Not rated	
LgC:					
Latham--------------	55	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00
		Too acid	0.99	Too steep for surface application	1.00
Gilpin--------------	30	Not rated		Not rated	

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
LgD:					
Latham	40	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too steep for sprinkler application	1.00		
Gilpin	35	Not rated		Not rated	
LiD:					
Lily	70	Not rated		Not rated	
LiE:					
Lily	75	Not rated		Not rated	
Lo:					
Lobdell	75	Somewhat limited		Very limited	
		Too acid	0.91	Flooding	1.00
		Depth to saturated zone	0.86	Seepage	1.00
				Too acid	0.91
		Flooding	0.60		
MlE:					
Matewan	45	Not rated		Not rated	
Latham	30	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too steep for sprinkler application	1.00		
MPF:					
Matewan	50	Not rated		Not rated	
Pineville	25	Not rated		Not rated	
Guyandotte	25	Not rated		Not rated	
Mr:					
Middlebury	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.95	Seepage	1.00
				Depth to saturated zone	0.95
		Too acid	0.42		
Ms:					
Moshannon	70	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
		Too acid	0.31	Seepage	1.00
				Too acid	0.31

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
Ne:					
Nelse	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
Or:					
Orrville	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	1.00
		Too acid	0.03	Seepage	1.00
PvE:					
Pineville	70	Not rated		Not rated	
RmF:					
Rayne	60	Not rated		Not rated	
Matewan	25	Not rated		Not rated	
Sc:					
Senecaville	90	Very limited		Very limited	
		Depth to saturated zone	0.99	Flooding	1.00
		Flooding	0.60	Seepage	1.00
		Too acid	0.42	Depth to saturated zone	0.99
SeA:					
Sensabaugh	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
				Seepage	1.00
SfB:					
Sensabaugh	80	Somewhat limited		Very limited	
		Too steep for surface application	0.68	Seepage	1.00
				Flooding	0.40
ShF:					
Sharpcrest	50	Not rated		Not rated	
Hazleton	25	Not rated		Not rated	
SkC:					
Shelocta	60	Not rated		Not rated	
Beech	30	Not rated		Not rated	
SlD:					
Shelocta	60	Not rated		Not rated	
Beech	40	Not rated		Not rated	
SlE:					
Shelocta	60	Not rated		Not rated	
Beech	40	Not rated		Not rated	

Table 8b.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
Sm:					
Skidmore	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Too acid	0.42	Seepage	1.00
		Droughty	0.26	Too acid	0.42
Ud:					
Udorthents	85	Not rated		Not rated	
UkB:					
Urban land	50	Not rated		Not rated	
Kanawha	35	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.42
		Low adsorption	0.02	Low adsorption	0.02
UuB:					
Udorthents	50	Not rated		Not rated	
Urban land	25	Not rated		Not rated	
Uw:					
Udorthents	100	Not rated		Not rated	
VaC:					
Vandalia	80	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface	1.00
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	0.78	Too acid	0.42
VnD:					
Vandalia	85	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too acid	0.42
VnE:					
Vandalia	70	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too acid	0.42
Yg:					
Yeager	90	Not rated		Not rated	

Table 8c.--Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny	90	Very limited		Very limited	
		Depth to bedrock	1.00	Too acid	1.00
		Slow water movement	1.00	Too steep for surface application	0.68
		Slope	0.50	Depth to bedrock	0.42
AgC:					
Allegheny	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	1.00	Too acid	1.00
BeD:					
Beech	80	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
BeE:					
Beech	70	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
BSF:					
Berks	40	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.62		
		Too acid	0.14		
Shelocta	35	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Too acid	0.21		
CeF:					
Cedarcreek	70	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	1.00	Too acid	0.96

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CeF:					
Rock outcrop	15	Not rated		Not rated	
Ch:					
Chagrin	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Too acid	0.42
		Slow water movement	1.00		
CoA:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Too acid	0.99
CoB:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Too acid	0.99
		Slope	0.50	Too steep for surface application	0.68
CuB:					
Cotaco	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Too acid	0.99
				Too steep for surface application	0.08
Urban land	25	Not rated		Not rated	
CuC:					
Cotaco	40	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	1.00	Depth to saturated zone	0.99
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.96

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
DlD:					
Latham	35	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Depth to bedrock	1.00
		Depth to saturated zone	1.00	Too steep for surface application	1.00
DlE:					
Dormont	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.96
Latham	25	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
GiD:					
Gilpin	70	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
GiE:					
Gilpin	80	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
GlF:					
Gilpin	70	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
GmE:					
Gilpin	40	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Matewan	35	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
GpC:					
Gilpin	55	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Upshur	25	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
GpD:					
Gilpin	55	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Upshur	25	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
GpE:					
Gilpin	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Upshur	20	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
GpF:					
Gilpin	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Upshur	25	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
GrE:					
Gilpin	45	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
GrE:					
Wharton	30	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
Gs:					
Grigsby	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00		
		Slow water movement	0.32		
Gt:					
Grigsby	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Flooding	0.60
		Flooding	0.60		
		Slow water movement	0.32		
Gu:					
Guyan	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.91
				Low adsorption	0.46
		Too acid	0.07		
HMF:					
Highsplint	35	Very limited		Not rated	
		Slope	1.00		
		Cobble content	0.49		
		Slow water movement	0.32		
Matewan	25	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		
Cloverlick	15	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Cobble content	0.84		
HuE:					
Highsplint	45	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.49		
Urban land	35	Not rated		Not rated	

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
Hy:					
Holly	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.60
		Flooding	0.60	Too acid	0.31
KaA:					
Kanawha	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
				Low adsorption	0.02
KaB:					
Kanawha	70	Very limited		Somewhat limited	
		Slow water movement	1.00	Too steep for surface application	0.68
		Slope	0.50	Too acid	0.42
				Low adsorption	0.02
KfB:					
Kaymine	45	Very limited		Somewhat limited	
		Cobble content	1.00	Cobble content	0.12
		Slow water movement	0.56	Too steep for surface application	0.08
Fiveblock	25	Very limited		Somewhat limited	
		Slow water movement	0.99	Cobble content	0.12
		Cobble content	0.47	Too steep for surface application	0.08
				Low adsorption	0.05
KfF:					
Kaymine	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Cobble content	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.56	Cobble content	0.12
Fiveblock	25	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.99	Too steep for sprinkler irrigation	1.00
		Cobble content	0.47	Cobble content	0.12

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
KmF:					
Kaymine	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Cobble content	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.56	Cobble content	0.12
Cedarcreek	25	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	1.00	Too acid	0.96
Matewan	20	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		
LgC:					
Latham	55	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Depth to bedrock	1.00
Gilpin	30	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
LgD:					
Latham	40	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
Gilpin	35	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
LiD:					
Lily----------------	70	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.32		
LiE:					
Lily----------------	75	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.32		
Lo:					
Lobdell-------------	75	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Too acid	0.91
		Slow water movement	1.00	Depth to saturated zone	0.86
		Flooding	0.60	Flooding	0.60
MlE:					
Matewan-------------	45	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		
Latham--------------	30	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
MPF:					
Matewan-------------	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		
Pineville-----------	25	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Too acid	0.14		
Guyandotte----------	25	Very limited		Not rated	
		Slope	1.00		
		Cobble content	1.00		
		Slow water movement	0.62		
Mr:					
Middlebury----------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Slow water movement	1.00	Too acid	0.42

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ms:					
Moshannon-----------	70	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Flooding	0.60
		Slow water movement	1.00	Too acid	0.31
		Flooding	0.60		
Ne:					
Nelse---------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
Or:					
Orrville------------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	0.60
		Flooding	0.60	Too acid	0.03
PvE:					
Pineville-----------	70	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Too acid	0.14		
RmF:					
Rayne---------------	60	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	1.00		
Matewan-------------	25	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Cobble content	0.37		
Sc:					
Senecaville---------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	1.00	Flooding	0.60
		Flooding	0.60	Too acid	0.42
SeA:					
Sensabaugh----------	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Flooding	0.60
		Flooding	0.60		
		Slow water movement	0.50		

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SfB:					
Sensabaugh----------	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Too steep for surface application	0.68
		Slope	0.50		
ShF:					
Sharpcrest----------	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.32		
Hazleton-----------	25	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Too acid	0.77		
SkC:					
Shelocta-----------	60	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
Beech--------------	30	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
SlD:					
Shelocta-----------	60	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
Beech--------------	40	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
SlE:					
Shelocta-----------	60	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to bedrock	1.00		
Beech--------------	40	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	1.00		
		Depth to saturated zone	1.00		

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Sm:					
Skidmore------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Too acid	0.42
		Depth to bedrock	1.00	Depth to saturated zone	0.09
Ud:					
Udorthents----------	85	Not rated		Not rated	
UkB:					
Urban land----------	50	Not rated		Not rated	
Kanawha-------------	35	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
				Too steep for surface application	0.08
				Low adsorption	0.02
UuB:					
Udorthents----------	50	Not rated		Not rated	
Urban land----------	25	Not rated		Not rated	
Uw:					
Udorthents----------	100	Not rated		Not rated	
VaC:					
Vandalia------------	80	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
VnD:					
Vandalia------------	85	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00
VnE:					
Vandalia------------	70	Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	1.00

Table 8c.--Agricultural Waste Management--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Yg:					
Yeager--------------	90	Very limited		Not rated	
		Flooding	1.00		
		Depth to saturated zone	1.00		

Table 9.--Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AgB:				
Allegheny	black oak	78	57	black walnut, eastern white pine, white oak, yellow-poplar
	eastern white pine	90	172	
	northern red oak	80	57	
	shortleaf pine	75	114	
	Virginia pine	75	114	
	white oak	70	57	
	yellow-poplar	90	86	
AgC:				
Allegheny	black oak	78	57	black walnut, eastern white pine, white oak, yellow-poplar
	eastern white pine	90	172	
	northern red oak	80	57	
	shortleaf pine	75	114	
	Virginia pine	75	114	
	white oak	70	57	
	yellow-poplar	90	86	
BeD:				
Beech	northern red oak	83	65	black walnut, eastern white pine, yellow-poplar
	shortleaf pine	83	135	
	yellow-poplar	96	100	
BeE:				
Beech	northern red oak	83	65	black walnut, eastern white pine, yellow-poplar
	shortleaf pine	83	135	
	yellow-poplar	96	100	
BSF:				
Berks	black oak	60	43	---
	chestnut oak	---	---	
	northern red oak	60	43	
	Virginia pine	60	86	
	white oak	60	43	
Shelocta	basswood	---	---	---
	black oak	85	---	
	hickory	---	---	
	northern red oak	86	72	
	yellow-poplar	108	---	
CeF:				
Cedarcreek	American sycamore	90	0	eastern white pine, northern red oak, Virginia pine
	black locust	100	0	
	eastern white pine	94	174	
	northern red oak	80	62	
	yellow-poplar	105	115	
Rock outcrop	---	---	---	---
Ch:				
Chagrin	northern red oak	86	72	black walnut, eastern white pine, northern red oak, red pine, white ash, white oak, yellow-poplar
	sugar maple	86	57	
	yellow-poplar	96	100	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CoA:				
Cotaco	black oak	87	72	eastern white pine, sweetgum, white oak, yellow-poplar
	northern red oak	80	57	
	Virginia pine	81	129	
	white oak	83	57	
	yellow-poplar	95	100	
CoB:				
Cotaco	black oak	87	72	eastern white pine, sweetgum, white oak, yellow-poplar
	northern red oak	80	57	
	Virginia pine	81	129	
	white oak	83	57	
	yellow-poplar	95	100	
CuB:				
Cotaco	black oak	87	72	eastern white pine, sweetgum, white oak, yellow-poplar
	northern red oak	80	57	
	Virginia pine	81	129	
	yellow-poplar	95	100	
Urban land	---	---	---	---
CuC:				
Cotaco	black oak	87	72	eastern white pine, sweetgum, white oak, yellow-poplar
	northern red oak	80	57	
	Virginia pine	81	129	
	yellow-poplar	95	100	
Urban land	---	---	---	---
DlD:				
Dormont	northern red oak	80	57	eastern white pine, European larch, Norway spruce, white spruce, yellow-poplar
	sugar maple	80	57	
	white ash	80	57	
	yellow-poplar	80	72	
Latham	northern red oak	68	57	eastern white pine, northern red oak, Virginia pine, white ash, white oak
DlE:				
Dormont	northern red oak	80	57	eastern white pine, European larch, Norway spruce, white spruce, yellow-poplar
	sugar maple	80	57	
	white ash	80	57	
	yellow-poplar	80	72	
Latham	northern red oak	64	57	eastern white pine, northern red oak, Virginia pine, white ash, white oak
GiD:				
Gilpin	black oak	74	55	black cherry, eastern white pine, Virginia pine, yellow-poplar
	chestnut oak	67	49	
	northern red oak	73	57	
	Virginia pine	71	80	
	yellow-poplar	89	89	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
GiE:				
Gilpin------------------	black oak-----------	74	55	black cherry, eastern white pine, Virginia pine, yellow-poplar
	chestnut oak--------	67	49	
	northern red oak----	73	57	
	Virginia pine-------	71	80	
	yellow-poplar-------	89	89	
GlF:				
Gilpin------------------	northern red oak----	79	57	black cherry, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine-------	92	86	
	yellow-poplar-------	89	86	
GmE:				
Gilpin------------------	black oak-----------	74	55	black cherry, eastern white pine, Virginia pine, yellow-poplar
	chestnut oak--------	67	49	
	northern red oak----	73	57	
	Virginia pine-------	71	80	
	yellow-poplar-------	89	89	
Matewan-----------------	black oak-----------	72	53	eastern white pine, Japanese larch, Norway spruce, Virginia pine
	northern red oak----	70	52	
	scarlet oak---------	73	54	
	yellow-poplar-------	85	57	
GpC:				
Gilpin------------------	northern red oak----	80	57	black cherry, eastern white pine, Virginia pine, yellow-poplar
	yellow-poplar-------	95	100	
Upshur------------------	eastern white pine--	80	143	eastern white pine, northern red oak, Virginia pine, yellow-poplar
	northern red oak----	65	43	
	Virginia pine-------	66	100	
	yellow-poplar-------	80	72	
GpD:				
Gilpin------------------	northern red oak----	80	57	black cherry, eastern white pine, Virginia pine, yellow-poplar
	yellow-poplar-------	95	100	
Upshur------------------	eastern white pine--	90	172	eastern white pine, shortleaf pine, Virginia pine, yellow-poplar
	northern red oak----	70	57	
	Virginia pine-------	70	114	
	yellow-poplar-------	90	86	
GpE:				
Gilpin------------------	northern red oak----	80	57	black cherry, eastern white pine, Virginia pine, yellow-poplar
	yellow-poplar-------	95	100	
Upshur------------------	eastern white pine--	80	143	eastern white pine, shortleaf pine, Virginia pine, yellow-poplar
	northern red oak----	68	57	
	Virginia pine-------	65	100	
	yellow-poplar-------	85	72	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
GpF:				
Gilpin	northern red oak	80	57	black cherry, eastern white pine, Virginia pine, yellow-poplar
	yellow-poplar	95	100	
Upshur	eastern white pine	80	143	eastern white pine, shortleaf pine, Virginia pine, yellow-poplar
	northern red oak	68	57	
	Virginia pine	65	100	
	yellow-poplar	85	80	
GrE:				
Gilpin	black oak	82	62	black cherry, eastern white pine, Virginia pine, yellow-poplar
	northern red oak	84	72	
	scarlet oak	75	53	
	white oak	81	51	
	yellow-poplar	92	90	
Wharton	chestnut oak	65	48	black locust, black oak, chestnut oak, scarlet oak
	northern red oak	73	55	
	white oak	65	48	
	yellow-poplar	90	91	
Gs:				
Grigsby	northern red oak	85	57	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
	white oak	85	57	
	yellow-poplar	110	129	
Gt:				
Grigsby	northern red oak	85	57	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
	white oak	85	57	
	yellow-poplar	110	129	
Gu:				
Guyan	American sycamore	85	57	eastern white pine, Norway spruce, yellow-poplar
	boxelder	88	57	
	red maple	80	50	
	yellow-poplar	90	90	
HMF:				
Highsplint	yellow-poplar	100	114	eastern white pine, northern red oak, shortleaf pine, white oak, yellow-poplar
Matewan	black cherry	80	57	eastern white pine, Japanese larch, Norway spruce, red pine, Virginia pine
	black oak	70	57	
	chestnut oak	76	57	
	northern red oak	75	57	
	scarlet oak	76	57	
	Virginia pine	70	114	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
HMF:				
Cloverlick	northern red oak	85	72	eastern white pine, northern red oak, shortleaf pine, white ash, yellow-poplar
	yellow-poplar	110	124	
HuE:				
Highsplint	yellow-poplar	100	114	eastern white pine, northern red oak, shortleaf pine, white oak, yellow-poplar
Urban land	---	---	---	---
Hy:				
Holly	pin oak	90	72	American sycamore, eastern cottonwood, pin oak, red maple, sweetgum
KaA:				
Kanawha	black oak	80	57	black locust, black walnut, eastern white pine, Norway spruce
	northern red oak	80	57	
	white ash	80	100	
	white oak	80	57	
	yellow-poplar	90	86	
KaB:				
Kanawha	black oak	80	57	black locust, black walnut, eastern white pine, Norway spruce
	northern red oak	80	57	
	white ash	80	100	
	white oak	80	57	
	yellow-poplar	90	86	
KfB:				
Kaymine	American sycamore	90	100	black locust, eastern white pine, red maple, Virginia pine, yellow-poplar
	eastern white pine	94	172	
	northern red oak	80	57	
	yellow-poplar	105	114	
Fiveblock	American sycamore	90	100	black locust, eastern white pine, red maple, Virginia pine, yellow-poplar
	eastern white pine	94	172	
	northern red oak	80	57	
	yellow-poplar	105	114	
KfF:				
Kaymine	American sycamore	90	100	black locust, eastern white pine, red maple, Virginia pine, yellow-poplar
	eastern white pine	94	172	
	northern red oak	80	57	
	yellow-poplar	105	114	
Fiveblock	American sycamore	90	100	black locust, eastern white pine, red maple, Virginia pine, yellow-poplar
	eastern white pine	94	172	
	northern red oak	80	57	
	yellow-poplar	105	114	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
KmF:				
Kaymine	American sycamore	90	100	black locust, eastern white pine, red maple, Virginia pine, yellow-poplar
	black locust	100	0	
	eastern white pine	94	174	
	northern red oak	80	62	
	yellow-poplar	105	115	
Cedarcreek	American sycamore	90	100	eastern white pine, northern red oak, Virginia pine
	eastern white pine	94	174	
	northern red oak	80	62	
	yellow-poplar	105	115	
Matewan	black oak	71	53	eastern white pine, Japanese larch, Norway spruce, red pine, Virginia pine
	northern red oak	73	55	
	scarlet oak	74	56	
LgC:				
Latham	northern red oak	63	43	eastern white pine, northern red oak, Virginia pine, white ash, white oak
Gilpin	northern red oak	80	57	black cherry, eastern white pine, Japanese larch, Virginia pine, yellow-poplar
	yellow-poplar	95	100	
LgD:				
Latham	northern red oak	68	57	eastern white pine, northern red oak, Virginia pine, white ash, white oak
Gilpin	northern red oak	80	57	black cherry, eastern white pine, Japanese larch, Virginia pine, yellow-poplar
	yellow-poplar	95	100	
LiD:				
Lily	black oak	78	57	eastern white pine, northern red oak, white oak, yellow-poplar
	chestnut oak	73	57	
	northern red oak	78	57	
	scarlet oak	77	57	
	shortleaf pine	63	100	
	Virginia pine	65	100	
	white oak	73	57	
	yellow-poplar	95	86	
LiE:				
Lily	black oak	80	67	eastern white pine, shortleaf pine, white oak, yellow-poplar
	northern red oak	78	62	
	Virginia pine	75	100	
	yellow-poplar	90	86	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Lo:				
Lobdell	northern red oak	87	72	eastern white pine, northern red oak, red pine, white ash, white oak, yellow-poplar
	yellow-poplar	96	100	
MlE:				
Matewan	black oak	72	53	eastern white pine, Japanese larch, Norway spruce, Virginia pine
	northern red oak	70	52	
	scarlet oak	73	54	
	yellow-poplar	85	57	
Latham	northern red oak	63	57	eastern white pine, northern red oak, Virginia pine, white ash, white oak
MPF:				
Matewan	black cherry	80	57	eastern white pine, Japanese larch, Norway spruce, red pine, Virginia pine
	black oak	70	57	
	chestnut oak	76	57	
	northern red oak	75	57	
	scarlet oak	76	57	
	Virginia pine	70	114	
Pineville	black oak	83	57	black walnut, eastern white pine, northern red oak, yellow-poplar
	northern red oak	83	65	
	yellow-poplar	98	100	
Guyandotte	American basswood	99	57	black cherry, black walnut, eastern white pine
	black cherry	86	57	
	black locust	85	72	
	northern red oak	85	72	
	yellow-poplar	104	114	
Mr:				
Middlebury	northern red oak	80	57	black cherry, black walnut, eastern white pine, European larch, Norway spruce, yellow-poplar
	sugar maple	70	43	
	yellow-poplar	85	86	
Ms:				
Moshannon	northern red oak	85	72	black cherry, black locust, black walnut, eastern white pine, white oak, yellow-poplar
	sugar maple	85	57	
	yellow-poplar	95	100	
Ne:				
Nelse	sweetgum	98	129	American sycamore, green ash, sweetgum

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Or:				
Orrville----------------	northern red oak----	80	57	eastern white pine, green ash, northern red oak, Norway spruce, red pine, Scotch pine, white ash, white oak, white spruce, yellow-poplar
	pin oak------------	85	72	
	sugar maple---------	80	57	
	yellow-poplar-------	90	86	
PvE:				
Pineville---------------	black oak-----------	83	57	black walnut, eastern white pine, northern red oak, yellow-poplar
	northern red oak----	83	65	
	yellow-poplar-------	98	100	
RmF:				
Rayne-------------------	eastern white pine--	90	143	black cherry, eastern white pine, Norway spruce, Virginia pine, yellow-poplar
	northern red oak----	80	57	
	shortleaf pine------	75	114	
	Virginia pine-------	75	114	
	yellow-poplar-------	90	86	
Matewan-----------------	black oak-----------	70	57	eastern white pine, Japanese larch, Norway spruce, red pine, Virginia pine
	northern red oak----	70	57	
	scarlet oak---------	74	56	
	Virginia pine-------	70	114	
Sc:				
Senecaville-------------	northern red oak----	85	72	---
	white ash-----------	85	114	
	white oak-----------	85	72	
	yellow-poplar-------	95	100	
SeA:				
Sensabaugh--------------	shortleaf pine------	80	129	black walnut, loblolly pine, yellow-poplar
	Virginia pine-------	75	114	
	white oak-----------	80	57	
	yellow-poplar-------	100	114	
SfB:				
Sensabaugh--------------	shortleaf pine------	80	129	black walnut, loblolly pine, yellow-poplar
	Virginia pine-------	75	114	
	white oak-----------	80	57	
	yellow-poplar-------	100	114	
ShF:				
Sharpcrest--------------	black oak-----------	66	43	eastern white pine, scarlet oak, shortleaf pine, white oak
	white oak-----------	62	43	
Hazleton----------------	northern red oak----	70	57	Austrian pine, black cherry, eastern white pine, Japanese larch, Norway spruce
	yellow-poplar-------	80	72	

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SkC:				
Shelocta	basswood	82	64	---
	black oak	85	67	
	northern red oak	86	68	
	yellow-poplar	108	121	
Beech	northern red oak	83	65	black walnut, eastern white pine, yellow-poplar
	shortleaf pine	83	135	
	yellow-poplar	96	100	
SlD:				
Shelocta	basswood	82	64	---
	black oak	85	67	
	northern red oak	86	68	
	yellow-poplar	108	121	
Beech	northern red oak	83	65	black walnut, eastern white pine, yellow-poplar
	shortleaf pine	83	135	
	yellow-poplar	96	100	
SlE:				
Shelocta	basswood	82	64	---
	black oak	85	67	
	northern red oak	86	68	
	yellow-poplar	108	121	
Beech	northern red oak	83	65	black walnut, eastern white pine, yellow-poplar
	shortleaf pine	83	135	
	yellow-poplar	96	100	
Sm:				
Skidmore	yellow-poplar	103	114	American sycamore, eastern white pine, white ash, yellow-poplar
Ud:				
Udorthents	---	---	---	---
UkB:				
Urban land	---	---	---	---
Kanawha	black oak	80	57	black locust, black walnut, eastern white pine, Norway spruce
	northern red oak	80	57	
	white ash	80	57	
	white oak	80	57	
	yellow-poplar	90	86	
UuB:				
Udorthents	---	---	---	---
Urban land	---	---	---	---
Uw:				
Udorthents	---	---	---	---

Table 9.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
VaC:				
Vandalia	northern red oak	73	57	black walnut, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	70	114	
	yellow-poplar	75	57	
VnD:				
Vandalia	northern red oak	73	57	black walnut, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	75	114	
	yellow-poplar	83	72	
VnE:				
Vandalia	northern red oak	73	57	black walnut, eastern white pine, Virginia pine, yellow-poplar
	Virginia pine	75	114	
	yellow-poplar	83	72	
Yg:				
Yeager	northern red oak	85	67	eastern white pine, northern red oak, sweetgum, white oak, yellow-poplar
	sweetgum	90	100	
	yellow-poplar	90	86	

Table 10a.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
AgC:							
Allegheny-----------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
BeD:							
Beech---------------	80	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
BeE:							
Beech---------------	70	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
BSF:							
Berks---------------	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		
Shelocta------------	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		
CeF:							
Cedarcreek----------	70	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin-------------	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
CoA:							
Cotaco--------------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Wetness	0.50				
CoB:							
Cotaco--------------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Wetness	0.50	Slope	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
CuB:							
Cotaco	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Wetness	0.50				
Urban land	25	Not rated		Not rated		Not rated	
CuC:							
Cotaco	40	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
		Wetness	0.50	Low strength	0.50		
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Latham	35	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
DlE:							
Dormont	50	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Latham	25	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
GiD:							
Gilpin	70	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
GiE:							
Gilpin	80	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
GlF:							
Gilpin	70	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
GmE:							
Gilpin	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
Matewan	35	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50				
GpC:							
Gilpin	55	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GpC:							
Upshur	25	Moderate		Moderately suited		Severe	
		Stickiness	0.50	Slope	0.50	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50				
GpD:							
Gilpin	55	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
Upshur	25	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness	0.50	Low strength	0.50		
		Slope	0.50				
GpE:							
Gilpin	50	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
Upshur	20	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness	0.50	Low strength	0.50		
		Slope	0.50				
GpF:							
Gilpin	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Upshur	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
GrE:							
Gilpin	45	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
Wharton	30	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Wetness	0.50	Low strength	0.50		
Gs:							
Grigsby	80	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
Gt:							
Grigsby	80	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
Gu:							
Guyan	85	Moderate		Moderately suited		Severe	
		Wetness	0.50	Wetness	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HMF:							
Highsplint----------	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		
Matewan-------------	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
Cloverlick----------	15	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		
HuE:							
Highsplint----------	45	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Urban land----------	35	Not rated		Not rated		Not rated	
Hy:							
Holly---------------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Wetness	1.00	Wetness	1.00	Wetness	0.50
		Low strength	0.50	Low strength	0.50		
KaA:							
Kanawha-------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
KaB:							
Kanawha-------------	70	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
KfB:							
Kaymine-------------	45	Moderate		Moderately suited		Moderate	
		Stoniness	0.50	Rock fragments	0.50	Low strength	0.50
Fiveblock-----------	25	Moderate		Moderately suited		Moderate	
		Stoniness	0.50	Rock fragments	0.50	Low strength	0.50
KfF:							
Kaymine-------------	50	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
Fiveblock-----------	25	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
KmF:							
Kaymine-------------	35	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmF:							
Cedarcreek----------	25	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
Matewan-------------	20	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
LgC:							
Latham--------------	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Gilpin--------------	30	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
LgD:							
Latham--------------	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Gilpin--------------	35	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
LiD:							
Lily----------------	70	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50				
LiE:							
Lily----------------	75	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50				
Lo:							
Lobdell-------------	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
MlE:							
Matewan-------------	45	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50				
Latham--------------	30	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
MPF:							
Matewan-------------	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
Pineville-----------	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
MPF:							
Guyandotte	25	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
		Stoniness	0.50	Rock fragments	0.50		
				Sandiness	0.50		
Mr:							
Middlebury	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Ms:							
Moshannon	70	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Landslides	0.10	Landslides	0.10		
Ne:							
Nelse	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Slope	0.50	Slope	1.00		
				Low strength	0.50		
Or:							
Orrville	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Wetness	0.50	Wetness	0.50		
		Low strength	0.50	Low strength	0.50		
PvE:							
Pineville	70	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
				Low strength	0.50		
RmF:							
Rayne	60	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Matewan	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
Sc:							
Senecaville	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Wetness	0.50				
SeA:							
Sensabaugh	80	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
SfB:							
Sensabaugh	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
ShF:							
Sharpcrest----------	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	1.00		
				Low strength	0.50		
Hazleton------------	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	1.00		
SkC:							
Shelocta------------	60	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
Beech---------------	30	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
SlD:							
Shelocta------------	60	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
Beech---------------	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
SlE:							
Shelocta------------	60	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
Beech---------------	40	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Sm:							
Skidmore------------	80	Severe		Poorly suited		Slight	
		Flooding	1.00	Flooding	1.00	Strength	0.10
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia------------	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		

Table 10a.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VnD:							
Vandalia------------	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
VnE:							
Vandalia------------	70	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Yg:							
Yeager--------------	90	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50

Table 10b.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	90	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
AgC:							
Allegheny-----------	90	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
BeD:							
Beech---------------	80	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
BeE:							
Beech---------------	70	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
BSF:							
Berks---------------	40	Very severe		Severe		Poorly suited	
		Slope	0.95	Slope	0.95	Slope	1.00
		Erodibility	0.95	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50
Shelocta------------	35	Very severe		Severe		Poorly suited	
		Slope	0.95	Slope	0.95	Slope	1.00
		Erodibility	0.95	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50
CeF:							
Cedarcreek----------	70	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Rock outcrop--------	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin-------------	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
CoA:							
Cotaco--------------	80	Slight		Slight		Moderately suited	
						Low strength	0.50
CoB:							
Cotaco--------------	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
CuB:							
Cotaco--------------	40	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
Urban land----------	25	Not rated		Not rated		Not rated	

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CuC:							
Cotaco	40	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Latham	35	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
DlE:							
Dormont	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
Latham	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
GiD:							
Gilpin	70	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
GiE:							
Gilpin	80	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
GlF:							
Gilpin	70	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
GmE:							
Gilpin	40	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Matewan	35	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
GpC:							
Gilpin	55	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50
Upshur	25	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
GpD:							
Gilpin	55	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
GpD:							
Upshur	25	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
GpE:							
Gilpin	50	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Upshur	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility		Erodibility	0.95	Low strength	0.50
GpF:							
Gilpin	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility		Erodibility	0.95	Low strength	0.50
Upshur	25	Very severe		Severe		Poorly suited	
		Slope	0.95	Slope	0.95	Slope	1.00
		Erodibility	0.95	Erodibility	0.95	Low strength	0.50
GrE:							
Gilpin	45	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Wharton	30	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Gs:							
Grigsby	80	Slight		Slight		Poorly suited	
						Flooding	1.00
Gt:							
Grigsby	80	Slight		Slight		Poorly suited	
						Flooding	1.00
Gu:							
Guyan	85	Slight		Slight		Moderately suited	
						Wetness	0.50
						Low strength	0.50
HMF:							
Highsplint	35	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50
Matewan	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Cloverlick	15	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
HuE:							
Highsplint----------	45	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Urban land----------	35	Not rated		Not rated		Not rated	
Hy:							
Holly---------------	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
KaA:							
Kanawha-------------	85	Slight		Slight		Moderately suited	
						Low strength	0.50
KaB:							
Kanawha-------------	70	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
KfB:							
Kaymine-------------	45	Slight		Moderate		Moderately suited	
				Slope	0.50	Rock fragments	0.50
				Erodibility	0.50		
Fiveblock-----------	25	Slight		Moderate		Moderately suited	
				Slope	0.50	Rock fragments	0.50
				Erodibility	0.50		
KfF:							
Kaymine-------------	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Fiveblock-----------	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
KmF:							
Kaymine-------------	35	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Cedarcreek----------	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Matewan-------------	20	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
LgC:							
Latham--------------	55	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Gilpin--------------	30	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
LgD:							
Latham	40	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Gilpin	35	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
LiD:							
Lily	70	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
LiE:							
Lily	75	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
Lo:							
Lobdell	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
MlE:							
Matewan	45	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
Latham	30	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
MPF:							
Matewan	50	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
Pineville	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50
Guyandotte	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Rock fragments	0.50
						Sandiness	0.50
Mr:							
Middlebury	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
Ms:							
Moshannon	70	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
						Landslides	0.10

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
Ne:							
Nelse	80	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Flooding	1.00
		Erodibility	0.50	Erodibility	0.95	Slope	1.00
						Low strength	0.50
Or:							
Orrville	80	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	0.50
						Low strength	0.50
PvE:							
Pineville	70	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Rock fragments	0.50
						Low strength	0.50
RmF:							
Rayne	60	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
Matewan	25	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95		
Sc:							
Senecaville	90	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
SeA:							
Sensabaugh	80	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
SfB:							
Sensabaugh	80	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50	Slope	0.50
ShF:							
Sharpcrest	50	Very severe		Severe		Poorly suited	
		Slope	0.95	Slope	0.95	Slope	1.00
		Erodibility	0.95	Erodibility	0.95	Rock fragments	1.00
						Low strength	0.50
Hazleton	25	Very severe		Severe		Poorly suited	
		Slope	0.95	Slope	0.95	Slope	1.00
		Erodibility	0.95	Erodibility	0.95	Rock fragments	1.00
SkC:							
Shelocta	60	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95		
Beech	30	Slight		Severe		Moderately suited	
				Slope	0.95	Slope	0.50
				Erodibility	0.95	Low strength	0.50

Table 10b.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
SlD:							
Shelocta	60	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
Beech	40	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
SlE:							
Shelocta	60	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95		
Beech	40	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
Sm:							
Skidmore	80	Slight		Slight		Poorly suited	
						Flooding	1.00
Ud:							
Udorthents	85	Not rated		Not rated		Not rated	
UkB:							
Urban land	50	Not rated		Not rated		Not rated	
Kanawha	35	Slight		Moderate		Moderately suited	
				Slope	0.50	Low strength	0.50
				Erodibility	0.50		
UuB:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia	80	Moderate		Severe		Moderately suited	
		Slope	0.50	Slope	0.95	Slope	0.50
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
VnD:							
Vandalia	85	Moderate		Severe		Poorly suited	
		Slope	0.50	Slope	0.95	Slope	1.00
		Erodibility	0.50	Erodibility	0.95	Low strength	0.50
VnE:							
Vandalia	70	Severe		Severe		Poorly suited	
		Slope	0.75	Slope	0.95	Slope	1.00
		Erodibility	0.75	Erodibility	0.95	Low strength	0.50
Yg:							
Yeager	90	Slight		Slight		Poorly suited	
						Flooding	1.00

Table 10c.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
AgC:							
Allegheny	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
BeD:							
Beech	80	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
BeE:							
Beech	70	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
						Slope	0.50
BSF:							
Berks	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
Shelocta	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
CeF:							
Cedarcreek	70	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CoA:							
Cotaco	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
						Wetness	0.50
CoB:							
Cotaco	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
						Wetness	0.50
CuB:							
Cotaco	40	Well suited		Well suited		Moderately suited	
						Low strength	0.50
						Wetness	0.50
Urban land	25	Not rated		Not rated		Not rated	

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
CuC:							
Cotaco	40	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
						Wetness	0.50
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Latham	35	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
DlE:							
Dormont	50	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Latham	25	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
GiD:							
Gilpin	70	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
GiE:							
Gilpin	80	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
						Slope	0.50
GlF:							
Gilpin	70	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
GmE:							
Gilpin	40	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Matewan	35	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
				Rock fragments	0.50		
GpC:							
Gilpin	55	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
GpC:							
Upshur--------------	25	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Stickiness	0.50	Low strength	0.50
		High plasticity index	0.50	High plasticity index	0.50		
				Slope	0.50		
GpD:							
Gilpin--------------	55	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Upshur--------------	25	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
GpE:							
Gilpin--------------	50	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
						Slope	0.50
Upshur--------------	20	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Stickiness	0.50	Slope	0.50
				High plasticity index	0.50		
GpF:							
Gilpin--------------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
Upshur--------------	25	Moderately suited		Unsuited		Poorly suited	
		Stickiness	0.50	Slope	1.00	Slope	1.00
		High plasticity index	0.50	Stickiness	0.50	Low strength	0.50
		Slope	0.50	High plasticity index	0.50		
GrE:							
Gilpin--------------	45	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Wharton-------------	30	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Wetness	0.50
						Slope	0.50
Gs:							
Grigsby-------------	80	Well suited		Well suited		Well suited	
Gt:							
Grigsby-------------	80	Well suited		Well suited		Well suited	
Gu:							
Guyan---------------	85	Well suited		Well suited		Moderately suited	
						Wetness	0.50
						Low strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
HMF:							
Highsplint----------	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
Matewan-------------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Cloverlick----------	15	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
HuE:							
Highsplint----------	45	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Urban land----------	35	Not rated		Not rated		Not rated	
Hy:							
Holly---------------	85	Moderately suited		Moderately suited		Poorly suited	
		Wetness	0.50	Wetness	0.50	Wetness	1.00
						Low strength	0.50
KaA:							
Kanawha-------------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
KaB:							
Kanawha-------------	70	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
KfB:							
Kaymine-------------	45	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Fiveblock-----------	25	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
KfF:							
Kaymine-------------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Fiveblock-----------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
KmF:							
Kaymine-------------	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Cedarcreek----------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
KmF:							
Matewan	20	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
LgC:							
Latham	55	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Rock fragments	0.50	Low strength	0.50
		High plasticity index	0.50	Slope	0.50		
				Stickiness	0.50		
				High plasticity index	0.50		
Gilpin	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
LgD:							
Latham	40	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
Gilpin	35	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
LiD:							
Lily	70	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
LiE:							
Lily	75	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
				Rock fragments	0.50		
Lo:							
Lobdell	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MlE:							
Matewan	45	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
				Rock fragments	0.50		
Latham	30	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
MPF:							
Matewan	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
MPF:							
Pineville-----------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
Guyandotte----------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Sandiness	0.50	Rock fragments	0.75	Rock fragments	0.50
		Rock fragments	0.50	Sandiness	0.50	Sandiness	0.50
Mr:							
Middlebury----------	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ms:							
Moshannon-----------	70	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ne:							
Nelse---------------	80	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
Or:							
Orrville------------	80	Well suited		Well suited		Moderately suited	
						Wetness	0.50
						Low strength	0.50
PvE:							
Pineville-----------	70	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Slope	1.00	Rock fragments	0.50
				Rock fragments	0.75	Low strength	0.50
						Slope	0.50
RmF:							
Rayne---------------	60	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
Matewan-------------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Sc:							
Senecaville---------	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
						Wetness	0.50
SeA:							
Sensabaugh----------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
SfB:							
Sensabaugh----------	80	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
ShF:							
Sharpcrest----------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Rock fragments	1.00
		Rock fragments	0.50	Rock fragments	0.75	Slope	1.00
						Low strength	0.50

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
ShF:							
Hazleton------------	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Rock fragments	1.00
		Rock fragments	0.50	Rock fragments	0.75	Slope	1.00
SkC:							
Shelocta------------	60	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Beech---------------	30	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
SlD:							
Shelocta------------	60	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
Beech---------------	40	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
SlE:							
Shelocta------------	60	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
				Rock fragments	0.50		
Beech---------------	40	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Sm:							
Skidmore------------	80	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Well suited		Well suited		Moderately suited	
						Low strength	0.50
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia------------	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.50	Rock fragments	0.50	Low strength	0.50
		High plasticity index	0.50	Slope	0.50		
				Stickiness	0.50		
				High plasticity index	0.50		

Table 10c.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VnD:							
Vandalia------------	85	Moderately suited		Poorly suited		Moderately suited	
		Stickiness	0.50	Slope	0.75	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
VnE:							
Vandalia------------	70	Moderately suited		Unsuited		Moderately suited	
		Stickiness	0.50	Slope	1.00	Low strength	0.50
		High plasticity index	0.50	Rock fragments	0.50	Slope	0.50
				Stickiness	0.50		
				High plasticity index	0.50		
Yg:							
Yeager--------------	90	Well suited		Well suited		Well suited	

Table 10d.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny	90	Well suited		Well suited	
AgC:					
Allegheny	90	Well suited		Well suited	
BeD:					
Beech	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
BeE:					
Beech	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
BSF:					
Berks	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Shelocta	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
CeF:					
Cedarcreek	70	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Rock outcrop	15	Not rated		Not rated	
Ch:					
Chagrin	75	Well suited		Well suited	
CoA:					
Cotaco	80	Well suited		Well suited	
CoB:					
Cotaco	80	Well suited		Well suited	
CuB:					
Cotaco	40	Well suited		Well suited	
Urban land	25	Not rated		Not rated	
CuC:					
Cotaco	40	Well suited		Well suited	
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Latham	35	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
DlE:					
Dormont	50	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Latham	25	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
GiD:					
Gilpin	70	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
GiE:					
Gilpin	80	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
GlF:					
Gilpin	70	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
				Slope	1.00
GmE:					
Gilpin	40	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Matewan	35	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
GpC:					
Gilpin	55	Well suited		Unsuited	
				Restrictive layer	1.00
Upshur	25	Poorly suited		Well suited	
		Stickiness	0.50		
		High plasticity index	0.50		
GpD:					
Gilpin	55	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Upshur	25	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness	0.50		
		High plasticity index	0.50		
GpE:					
Gilpin	50	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Upshur	20	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness	0.50		
		High plasticity index	0.50		
GpF:					
Gilpin	50	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
				Slope	1.00

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
GpF:					
Upshur--------------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness	0.50		
		High plasticity index	0.50		
GrE:					
Gilpin--------------	45	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Wharton-------------	30	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Gs:					
Grigsby-------------	80	Well suited		Well suited	
Gt:					
Grigsby-------------	80	Well suited		Well suited	
Gu:					
Guyan---------------	85	Well suited		Unsuited	
				Wetness	1.00
HMF:					
Highsplint----------	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Matewan-------------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Cloverlick----------	15	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
HuE:					
Highsplint----------	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Urban land----------	35	Not rated		Not rated	
Hy:					
Holly---------------	85	Poorly suited		Unsuited	
		Wetness	0.50	Wetness	1.00
KaA:					
Kanawha-------------	85	Well suited		Well suited	
KaB:					
Kanawha-------------	70	Well suited		Well suited	
KfB:					
Kaymine-------------	45	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
Fiveblock-----------	25	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
KfF:					
Kaymine-------------	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Fiveblock-----------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
KmF:					
Kaymine-------------	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Cedarcreek----------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Matewan-------------	20	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
LgC:					
Latham--------------	55	Well suited		Well suited	
Gilpin--------------	30	Well suited		Unsuited	
				Restrictive layer	1.00
LgD:					
Latham--------------	40	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Gilpin--------------	35	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
LiD:					
Lily----------------	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
LiE:					
Lily----------------	75	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Lo:					
Lobdell-------------	75	Well suited		Well suited	
MlE:					
Matewan-------------	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Latham--------------	30	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
MPF:					
Matewan-------------	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Pineville-----------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
MPF:					
Guyandotte----------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
Mr:					
Middlebury----------	75	Well suited		Well suited	
Ms:					
Moshannon-----------	70	Well suited		Well suited	
Ne:					
Nelse---------------	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Or:					
Orrville------------	80	Well suited		Unsuited	
				Wetness	1.00
PvE:					
Pineville-----------	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50	Rock fragments	0.50
RmF:					
Rayne---------------	60	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Matewan-------------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Sc:					
Senecaville---------	90	Well suited		Well suited	
SeA:					
Sensabaugh----------	80	Well suited		Well suited	
SfB:					
Sensabaugh----------	80	Well suited		Well suited	
ShF:					
Sharpcrest----------	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	1.00	Rock fragments	0.50
Hazleton------------	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	1.00	Rock fragments	0.50
SkC:					
Shelocta------------	60	Well suited		Well suited	
Beech---------------	30	Well suited		Well suited	
SlD:					
Shelocta------------	60	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Beech---------------	40	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 10d.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
SlE:					
Shelocta------------	60	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Beech---------------	40	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Sm:					
Skidmore------------	80	Poorly suited		Unsuited	
		Rock fragments	0.50	Rock fragments	1.00
Ud:					
Udorthents----------	85	Not rated		Not rated	
UkB:					
Urban land----------	50	Not rated		Not rated	
Kanawha-------------	35	Well suited		Well suited	
UuB:					
Udorthents----------	50	Not rated		Not rated	
Urban land----------	25	Not rated		Not rated	
Uw:					
Udorthents----------	100	Not rated		Not rated	
VaC:					
Vandalia------------	80	Well suited		Well suited	
VnD:					
Vandalia------------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
VnE:					
Vandalia------------	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Yg:					
Yeager--------------	90	Well suited		Well suited	

Table 10e.--Forestland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny-----------	90	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
AgC:					
Allegheny-----------	90	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
BeD:					
Beech---------------	80	Not rated		Low	
BeE:					
Beech---------------	70	Not rated		Low	
BSF:					
Berks---------------	40	Moderate		Low	
		Texture	0.50		
		Slope	0.50		
		Surface depth	0.50		
		Rock fragments	0.50		
Shelocta------------	35	Moderate		Low	
		Texture	0.50		
		Slope	0.50		
		Surface depth	0.50		
		Rock fragments	0.50		
CeF:					
Cedarcreek----------	70	High		Low	
		Texture	1.00		
		Slope	1.00		
		Surface depth	1.00		
		Rock fragments	1.00		
Rock outcrop--------	15	Not rated		Not rated	
Ch:					
Chagrin-------------	75	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
CoA:					
Cotaco--------------	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
CoB:					
Cotaco--------------	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
CuB:					
Cotaco--------------	40	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		

Table 10e.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
CuB:					
Urban land	25	Not rated		Not rated	
CuC:					
Cotaco	40	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Latham	35	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
DlE:					
Dormont	50	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Latham	25	Low		Low	
GiD:					
Gilpin	70	Not rated		Low	
GiE:					
Gilpin	80	Not rated		Low	
GlF:					
Gilpin	70	Not rated		Low	
GmE:					
Gilpin	40	Low		Low	
Matewan	35	Not rated		Low	
GpC:					
Gilpin	55	Not rated		Low	
Upshur	25	Not rated		Low	
GpD:					
Gilpin	55	Not rated		Low	
Upshur	25	Not rated		Low	
GpE:					
Gilpin	50	Not rated		Low	
Upshur	20	Not rated		Low	
GpF:					
Gilpin	50	Not rated		Low	
Upshur	25	Not rated		Low	
GrE:					
Gilpin	45	Not rated		Low	

Table 10e.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire		Potential for seedling mortality	
		Rating class and limiting features	Value	Rating class and limiting features	Value
GrE:					
Wharton-------------	30	Not rated		Low	
Gs:					
Grigsby-------------	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Gt:					
Grigsby-------------	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Gu:					
Guyan---------------	85	Low		High	
		Texture	0.10	Wetness	1.00
		Rock fragments	0.10		
HMF:					
Highsplint----------	35	Not rated		Low	
Matewan-------------	25	Not rated		Low	
Cloverlick----------	15	Low		Low	
HuE:					
Highsplint----------	45	Not rated		Low	
Urban land----------	35	Not rated		Not rated	
Hy:					
Holly---------------	85	Low		High	
		Texture	0.10	Wetness	1.00
		Rock fragments	0.10		
KaA:					
Kanawha-------------	85	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
KaB:					
Kanawha-------------	70	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
KfB:					
Kaymine-------------	45	Low		Moderate	
				Soil reaction	0.50
Fiveblock-----------	25	Low		Low	
KfF:					
Kaymine-------------	50	High		Moderate	
		Texture	1.00	Soil reaction	0.50
		Slope	1.00		
		Surface depth	1.00		
		Rock fragments	1.00		
Fiveblock-----------	25	High		Low	
		Texture	1.00		
		Slope	1.00		
		Surface depth	1.00		
		Rock fragments	1.00		

Table 10e.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
KmF:					
Kaymine-------------	35	High		Moderate	
		Texture	1.00	Soil reaction	0.50
		Slope	1.00		
		Surface depth	1.00		
		Rock fragments	1.00		
Cedarcreek----------	25	High		Low	
		Texture	1.00		
		Slope	1.00		
		Surface depth	1.00		
		Rock fragments	1.00		
Matewan-------------	20	Not rated		Low	
LgC:					
Latham--------------	55	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Gilpin--------------	30	Not rated		Low	
LgD:					
Latham--------------	40	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Gilpin--------------	35	Not rated		Low	
LiD:					
Lily----------------	70	Not rated		Low	
LiE:					
Lily----------------	75	Not rated		Low	
Lo:					
Lobdell-------------	75	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
MlE:					
Matewan-------------	45	Not rated		Low	
Latham--------------	30	Low		Low	
MPF:					
Matewan-------------	50	Not rated		Low	
Pineville-----------	25	Not rated		Low	
Guyandotte----------	25	Not rated		Low	
Mr:					
Middlebury----------	75	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Ms:					
Moshannon-----------	70	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		

Table 10e.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
Ne:					
Nelse	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Or:					
Orrville	80	Low		High	
		Texture	0.10	Wetness	1.00
		Rock fragments	0.10		
PvE:					
Pineville	70	Not rated		Low	
RmF:					
Rayne	60	Not rated		Low	
Matewan	25	Not rated		Low	
Sc:					
Senecaville	90	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
SeA:					
Sensabaugh	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
SfB:					
Sensabaugh	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
ShF:					
Sharpcrest	50	Not rated		Low	
Hazleton	25	Not rated		Low	
SkC:					
Shelocta	60	Not rated		Low	
Beech	30	Not rated		Low	
SlD:					
Shelocta	60	Not rated		Low	
Beech	40	Not rated		Low	
SlE:					
Shelocta	60	Not rated		Low	
Beech	40	Not rated		Low	
Sm:					
Skidmore	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
Ud:					
Udorthents	85	Not rated		Not rated	

Table 10e.--Forestland Management--Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
UkB:					
Urban land----------	50	Not rated		Not rated	
Kanawha------------	35	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
UuB:					
Udorthents----------	50	Not rated		Not rated	
Urban land----------	25	Not rated		Not rated	
Uw:					
Udorthents----------	100	Not rated		Not rated	
VaC:					
Vandalia------------	80	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
VnD:					
Vandalia------------	85	Low		Low	
		Texture	0.10		
		Rock fragments	0.10		
VnE:					
Vandalia------------	70	Low		Low	
Yg:					
Yeager--------------	90	Not rated		Low	

Table 11a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	90	Not limited		Not limited		Very limited	
						Slope	1.00
AgC:							
Allegheny-----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
BeD:							
Beech---------------	80	Not rated		Not rated		Not rated	
BeE:							
Beech---------------	70	Not rated		Not rated		Not rated	
BSF:							
Berks---------------	40	Not rated		Not rated		Not rated	
Shelocta------------	35	Not rated		Not rated		Not rated	
CeF:							
Cedarcreek----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Gravel content	1.00
		Gravel content	0.32	Gravel content	0.32	Large stones content	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin-------------	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
CoA:							
Cotaco--------------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.22	Depth to saturated zone	0.44
						Gravel content	0.20
CoB:							
Cotaco--------------	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.22	Slope	1.00
						Depth to saturated zone	0.44
						Gravel content	0.20
CuB:							
Cotaco--------------	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.22	Slope	0.50
						Depth to saturated zone	0.44
						Gravel content	0.20
Urban land----------	25	Not rated		Not rated		Not rated	

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
CuC:							
Cotaco	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Depth to saturated zone	0.44	Depth to saturated zone	0.22	Depth to saturated zone	0.44
						Gravel content	0.20
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Gravel content	0.22
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Slow water movement	0.15
Latham	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Depth to bedrock	0.16
DlE:							
Dormont	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.15	Slow water movement	0.15	Gravel content	0.22
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Slow water movement	0.15
Latham	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Depth to bedrock	0.16
GiD:							
Gilpin	70	Not rated		Not rated		Not rated	
GiE:							
Gilpin	80	Not rated		Not rated		Not rated	
GlF:							
Gilpin	70	Not rated		Not rated		Not rated	
GmE:							
Gilpin	40	Not rated		Not rated		Not rated	
Matewan	35	Not rated		Not rated		Not rated	
GpC:							
Gilpin	55	Not rated		Not rated		Not rated	
Upshur	25	Not rated		Not rated		Not rated	
GpD:							
Gilpin	55	Not rated		Not rated		Not rated	
Upshur	25	Not rated		Not rated		Not rated	

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
GpE:							
Gilpin	50	Not rated		Not rated		Not rated	
Upshur	20	Not rated		Not rated		Not rated	
GpF:							
Gilpin	50	Not rated		Not rated		Not rated	
Upshur	25	Not rated		Not rated		Not rated	
GrE:							
Gilpin	45	Not rated		Not rated		Not rated	
Wharton	30	Not rated		Not rated		Not rated	
Gs:							
Grigsby	80	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
Gt:							
Grigsby	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Gu:							
Guyan	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99	Depth to saturated zone	1.00
		Flooding	1.00				
HMF:							
Highsplint	35	Not rated		Not rated		Not rated	
Matewan	25	Not rated		Not rated		Not rated	
Cloverlick	15	Not rated		Not rated		Not rated	
HuE:							
Highsplint	45	Not rated		Not rated		Not rated	
Urban land	35	Not rated		Not rated		Not rated	
Hy:							
Holly	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
KaA:							
Kanawha	85	Not limited		Not limited		Not limited	
KaB:							
Kanawha	70	Not limited		Not limited		Very limited	
						Slope	1.00
KfB:							
Kaymine	45	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
						Gravel content	0.78
						Slope	0.50

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KfB:							
Fiveblock	25	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Gravel content	0.38	Gravel content	0.38	Gravel content	1.00
						Slope	0.50
KfF:							
Kaymine	50	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.78
Fiveblock	25	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.38	Gravel content	0.38	Gravel content	1.00
KmF:							
Kaymine	35	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.78
Cedarcreek	25	Very limited		Very limited		Very limited	
		Slope	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.32	Gravel content	0.32	Gravel content	1.00
Matewan	20	Not rated		Not rated		Not rated	
LgC:							
Latham	55	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Depth to bedrock	0.16
Gilpin	30	Not rated		Not rated		Not rated	
LgD:							
Latham	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	0.10	Depth to saturated zone	0.05	Depth to bedrock	0.16
Gilpin	35	Not rated		Not rated		Not rated	
LiD:							
Lily	70	Not rated		Not rated		Not rated	
LiE:							
Lily	75	Not rated		Not rated		Not rated	

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
Lo:							
Lobdell	75	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
MlE:							
Matewan	45	Not rated		Not rated		Not rated	
Latham	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
MPF:							
Matewan	50	Not rated		Not rated		Not rated	
Pineville	25	Not rated		Not rated		Not rated	
Guyandotte	25	Not rated		Not rated		Not rated	
Mr:							
Middlebury	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Gravel content	0.22
						Depth to saturated zone	0.07
Ms:							
Moshannon	70	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Ne:							
Nelse	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Slope	1.00	Flooding	1.00
		Slope	1.00	Flooding	0.40	Slope	1.00
Or:							
Orrville	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
PvE:							
Pineville	70	Not rated		Not rated		Not rated	
RmF:							
Rayne	60	Not rated		Not rated		Not rated	
Matewan	25	Not rated		Not rated		Not rated	
Sc:							
Senecaville	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.22	Flooding	0.60
		Depth to saturated zone	0.44			Depth to saturated zone	0.44
SeA:							
Sensabaugh	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Gravel content	0.20

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
SfB:							
Sensabaugh----------	80	Very limited		Not limited		Very limited	
		Flooding	1.00			Slope	1.00
						Gravel content	0.20
ShF:							
Sharpcrest----------	50	Not rated		Not rated		Not rated	
Hazleton------------	25	Not rated		Not rated		Not rated	
SkC:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	30	Not rated		Not rated		Not rated	
SlD:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	40	Not rated		Not rated		Not rated	
SlE:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	40	Not rated		Not rated		Not rated	
Sm:							
Skidmore------------	80	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.50
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia------------	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
						Gravel content	0.20
VnD:							
Vandalia------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Gravel content	0.20

Table 11a.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
VnE:							
Vandalia------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slope	1.00
		Large stones content	0.19	Large stones content	0.19	Gravel content	0.20
Yg:							
Yeager--------------	90	Not rated		Not rated		Not rated	

Table 11b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny	90	Not limited		Not limited		Not limited	
AgC:							
Allegheny	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
BeD:							
Beech	80	Not rated		Not rated		Not rated	
BeE:							
Beech	70	Not rated		Not rated		Not rated	
BSF:							
Berks	40	Not rated		Not rated		Not rated	
Shelocta	35	Not rated		Not rated		Not rated	
CeF:							
Cedarcreek	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	0.99
						Gravel content	0.32
Rock outcrop	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin	75	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
CoA:							
Cotaco	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.22
CoB:							
Cotaco	80	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.22
CuB:							
Cotaco	40	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.22
Urban land	25	Not rated		Not rated		Not rated	
CuC:							
Cotaco	40	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
						Depth to saturated zone	0.22
Urban land	25	Not rated		Not rated		Not rated	

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
DlD:							
Dormont-------------	45	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50			Depth to saturated zone	0.05
Latham--------------	35	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50			Depth to bedrock	0.16
						Depth to saturated zone	0.05
DlE:							
Dormont-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22	Depth to saturated zone	0.05
Latham--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22	Depth to bedrock	0.16
						Depth to saturated zone	0.05
GiD:							
Gilpin--------------	70	Not rated		Not rated		Not rated	
GiE:							
Gilpin--------------	80	Not rated		Not rated		Not rated	
GlF:							
Gilpin--------------	70	Not rated		Not rated		Not rated	
GmE:							
Gilpin--------------	40	Not rated		Not rated		Not rated	
Matewan-------------	35	Not rated		Not rated		Not rated	
GpC:							
Gilpin--------------	55	Not rated		Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated		Not rated	
GpD:							
Gilpin--------------	55	Not rated		Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated		Not rated	
GpE:							
Gilpin--------------	50	Not rated		Not rated		Not rated	
Upshur--------------	20	Not rated		Not rated		Not rated	
GpF:							
Gilpin--------------	50	Not rated		Not rated		Not rated	
Upshur--------------	25	Not rated		Not rated		Not rated	
GrE:							
Gilpin--------------	45	Not rated		Not rated		Not rated	
Wharton-------------	30	Not rated		Not rated		Not rated	

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gs:							
Grigsby	80	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Gt:							
Grigsby	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Gu:							
Guyan	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
HMF:							
Highsplint	35	Not rated		Not rated		Not rated	
Matewan	25	Not rated		Not rated		Not rated	
Cloverlick	15	Not rated		Not rated		Not rated	
HuE:							
Highsplint	45	Not rated		Not rated		Not rated	
Urban land	35	Not rated		Not rated		Not rated	
Hy:							
Holly	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
KaA:							
Kanawha	85	Not limited		Not limited		Not limited	
KaB:							
Kanawha	70	Not limited		Not limited		Not limited	
KfB:							
Kaymine	45	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	0.68
Fiveblock	25	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	0.68
						Gravel content	0.38
						Droughty	0.34
KfF:							
Kaymine	50	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Large stones content	0.68
Fiveblock	25	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Large stones content	0.68
						Gravel content	0.38

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
KmF:							
Kaymine-------------	35	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Large stones content	0.68
Cedarcreek----------	25	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Large stones content	0.99
						Gravel content	0.32
Matewan-------------	20	Not rated		Not rated		Not rated	
LgC:							
Latham--------------	55	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
						Depth to bedrock	0.16
						Depth to saturated zone	0.05
Gilpin--------------	30	Not rated		Not rated		Not rated	
LgD:							
Latham--------------	40	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50			Depth to bedrock	0.16
						Depth to saturated zone	0.05
Gilpin--------------	35	Not rated		Not rated		Not rated	
LiD:							
Lily----------------	70	Not rated		Not rated		Not rated	
LiE:							
Lily----------------	75	Not rated		Not rated		Not rated	
Lo:							
Lobdell-------------	75	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
MlE:							
Matewan-------------	45	Not rated		Not rated		Not rated	
Latham--------------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22	Depth to bedrock	0.16
		Large stones content	0.19	Large stones content	0.19	Depth to saturated zone	0.05
MPF:							
Matewan-------------	50	Not rated		Not rated		Not rated	
Pineville-----------	25	Not rated		Not rated		Not rated	
Guyandotte----------	25	Not rated		Not rated		Not rated	
Mr:							
Middlebury----------	75	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
						Depth to saturated zone	0.03

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Ms:							
Moshannon-----------	70	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Ne:							
Nelse---------------	80	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Flooding	1.00
		Slope	0.50	Flooding	0.40	Slope	1.00
		Flooding	0.40				
Or:							
Orrville------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
PvE:							
Pineville-----------	70	Not rated		Not rated		Not rated	
RmF:							
Rayne---------------	60	Not rated		Not rated		Not rated	
Matewan-------------	25	Not rated		Not rated		Not rated	
Sc:							
Senecaville---------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.22
SeA:							
Sensabaugh----------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
SfB:							
Sensabaugh----------	80	Not limited		Not limited		Not limited	
ShF:							
Sharpcrest----------	50	Not rated		Not rated		Not rated	
Hazleton------------	25	Not rated		Not rated		Not rated	
SkC:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	30	Not rated		Not rated		Not rated	
SlD:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	40	Not rated		Not rated		Not rated	
SlE:							
Shelocta------------	60	Not rated		Not rated		Not rated	
Beech---------------	40	Not rated		Not rated		Not rated	
Sm:							
Skidmore------------	80	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
						Droughty	0.42
						Gravel content	0.04

Table 11b.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Not limited		Not limited		Not limited	
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia------------	80	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
VnD:							
Vandalia------------	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50	Large stones content	0.19		
		Large stones content	0.19				
VnE:							
Vandalia------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
		Large stones content	0.19	Large stones content	0.19		
Yg:							
Yeager--------------	90	Not rated		Not rated		Not rated	

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AgB:										
Allegheny	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AgC:										
Allegheny	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BeD:										
Beech	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
BeE:										
Beech	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
BSF:										
Berks	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Shelocta	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CeF:										
Cedarcreek	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Ch:										
Chagrin	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CoA:										
Cotaco	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor
CoB:										
Cotaco	Fair	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
CuB:										
Cotaco	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
Urban land	---	---	---	---	---	---	---	---	---	---
CuC:										
Cotaco	Good	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
Urban land	---	---	---	---	---	---	---	---	---	---
DlD:										
Dormont	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Latham	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
DlE:										
Dormont	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Latham	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GiD:										
Gilpin	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GiE:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GlF:										
Gilpin	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
GmE:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Matewan	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GpC:										
Gilpin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Upshur	Fair	Good	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GpD:										
Gilpin	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GpE:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Upshur	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GpF:										
Gilpin	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Upshur	Very poor	Poor	Fair	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
GrE:										
Gilpin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Wharton	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Gs:										
Grigsby	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Gt:										
Grigsby	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Gu:										
Guyan	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
HMF:										
Highsplint	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Matewan	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Cloverlick	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
HuE:										
Highsplint	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Urban land	---	---	---	---	---	---	---	---	---	---
Hy:										
Holly	Fair	Fair	Poor	Fair	Fair	Good	Good	Fair	Fair	Good
KaA:										
Kanawha	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KaB:										
Kanawha	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KfB:										
Kaymine	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Fiveblock	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
KfF:										
Kaymine	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Fiveblock	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
KmF:										
Kaymine	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Cedarcreek	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Matewan	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
LgC:										
Latham	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Gilpin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
LgD:										
Latham	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Gilpin	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
LiD:										
Lily	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LiE:										
Lily	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Lo:										
Lobdell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
MlE:										
Matewan	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Latham	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MPF:										
Matewan	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Pineville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Guyandotte	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Mr:										
Middlebury	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Ms:										
Moshannon	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ne:										
Nelse	Poor	Fair	Good	Good	Fair	Very poor	Very poor	Fair	Good	Very poor
Or:										
Orrville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
PvE:										
Pineville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
RmF:										
Rayne	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Matewan	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Sc:										
Senecaville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
SeA:										
Sensabaugh	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SfB:										
Sensabaugh	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ShF:										
Sharpcrest	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Hazleton	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
SkC:										
Shelocta	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Beech	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SlD:										
Shelocta	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Beech	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SlE:										
Shelocta	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Beech	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Sm:										
Skidmore	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
Ud:										
Udorthents	---	---	---	---	---	---	---	---	---	---
UkB:										
Urban land	---	---	---	---	---	---	---	---	---	---
Kanawha	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
UuB:										
Udorthents	---	---	---	---	---	---	---	---	---	---
Urban land	---	---	---	---	---	---	---	---	---	---
Uw:										
Udorthents	---	---	---	---	---	---	---	---	---	---
VaC:										
Vandalia	Fair	Good	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VnD:										
Vandalia	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
VnE:										
Vandalia	Very poor	Fair	Fair	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Yg:										
Yeager	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 13a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
				Depth to hard bedrock	0.42	Slope	0.50
AgC:							
Allegheny	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Large stones content	1.00
				Depth to hard bedrock	0.42		
BeD:							
Beech	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
BeE:							
Beech	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
BSF:							
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.64		
Shelocta	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
CeF:							
Cedarcreek	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	0.88	Large stones content	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
CoA:							
Cotaco	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	1.00	Depth to saturated zone	0.44

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
CoB:							
Cotaco	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	1.00	Slope	0.50
						Depth to saturated zone	0.44
CuB:							
Cotaco	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	1.00	Depth to saturated zone	0.44
Urban land	25	Not rated		Not rated		Not rated	
CuC:							
Cotaco	40	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	1.00
		Depth to saturated zone	0.44	Slope	0.63	Depth to saturated zone	0.44
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
Latham	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.10	Shrink-swell	1.00	Depth to saturated zone	0.10
DlE:							
Dormont	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
Latham	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.10	Shrink-swell	1.00	Depth to saturated zone	0.10
GiD:							
Gilpin	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
GiE:							
Gilpin	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
GlF:							
Gilpin	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
GmE:							
Gilpin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
Matewan	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
GpC:							
Gilpin	55	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64	Depth to hard bedrock	0.20
				Slope	0.63		
Upshur	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00
GpD:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GpF:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
GrE:							
Gilpin	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
Wharton	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.44	Shrink-swell	0.50	Depth to saturated zone	0.44
Gs:							
Grigsby	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.24		
Gt:							
Grigsby	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.24		
Gu:							
Guyan	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
HMF:							
Highsplint	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Matewan	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
Cloverlick	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
HuE:							
Highsplint	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Urban land	35	Not rated		Not rated		Not rated	

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Hy:							
Holly	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
KaA:							
Kanawha	85	Not limited		Not limited		Not limited	
KaB:							
Kanawha	70	Not limited		Not limited		Somewhat limited	
						Slope	0.50
KfB:							
Kaymine	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.57
Fiveblock	25	Not limited		Not limited		Not limited	
KfF:							
Kaymine	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.57
Fiveblock	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
KmF:							
Kaymine	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.57
Cedarcreek	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	0.88	Large stones content	0.88
Matewan	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
LgC:							
Latham	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.10	Slope	0.63	Depth to saturated zone	0.10
Gilpin	30	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64	Depth to hard bedrock	0.20
				Slope	0.63		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
LgD:							
Latham	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.10	Shrink-swell	1.00	Depth to saturated zone	0.10
Gilpin	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.20	Depth to hard bedrock	1.00	Depth to hard bedrock	0.20
				Depth to soft bedrock	0.64		
LiD:							
Lily	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
LiE:							
Lily	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
Lo:							
Lobdell	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.99		
MlE:							
Matewan	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
Latham	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.10	Shrink-swell	1.00	Depth to saturated zone	0.10
MPF:							
Matewan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
Pineville	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Guyandotte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.10	Large stones content	0.10	Large stones content	0.10

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
Mr:							
Middlebury	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
Ms:							
Moshannon	70	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
Ne:							
Nelse	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.15		
Or:							
Orrville	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PvE:							
Pineville	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
RmF:							
Rayne	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Matewan	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
Sc:							
Senecaville	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.44	Depth to saturated zone	1.00	Depth to saturated zone	0.44
		Shrink-swell	0.22			Shrink-swell	0.22
SeA:							
Sensabaugh	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
SfB:							
Sensabaugh	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
						Slope	0.50
ShF:							
Sharpcrest	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
ShF:							
Hazleton	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.42		
SkC:							
Shelocta	60	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Beech	30	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
SlD:							
Shelocta	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Beech	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
SlE:							
Shelocta	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Beech	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.10	Shrink-swell	0.50	Depth to saturated zone	0.10
Sm:							
Skidmore	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.82		
Ud:							
Udorthents	85	Not rated		Not rated		Not rated	
UkB:							
Urban land	50	Not rated		Not rated		Not rated	
Kanawha	35	Not limited		Not limited		Not limited	
UuB:							
Udorthents	50	Not rated		Not rated		Not rated	
Urban land	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents	100	Not rated		Not rated		Not rated	

Table 13a.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VaC:							
Vandalia------------	80	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Shrink-swell	1.00
				Depth to saturated zone	0.18		
VnD:							
Vandalia------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.18		
VnE:							
Vandalia------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to saturated zone	0.18		
Yg:							
Yeager--------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		

Table 13b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny	90	Very limited		Very limited		Not limited	
		Large stones content	1.00	Large stones content	1.00		
				Depth to hard bedrock	0.42		
				Cutbanks cave	0.10		
AgC:							
Allegheny	90	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Slope	0.63
		Slope	0.63	Slope	0.63		
				Depth to hard bedrock	0.42		
BeD:							
Beech	80	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	0.50	Depth to saturated zone	1.00		
		Frost action	0.50				
				Cutbanks cave	0.10		
BeE:							
Beech	70	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	0.50	Depth to saturated zone	1.00		
		Frost action	0.50				
				Cutbanks cave	0.10		
BSF:							
Berks	40	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
				Depth to soft bedrock	0.64		
				Cutbanks cave	0.10		
Shelocta	35	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
CeF:							
Cedarcreek	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	0.88	Large stones content	0.99
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.32
Rock outcrop	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.80	Flooding	1.00
		Frost action	0.50	Depth to saturated zone	0.15		
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
CoA:							
Cotaco	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.22	Depth to saturated zone	1.00	Depth to saturated zone	0.22
				Cutbanks cave	0.10		
CoB:							
Cotaco	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.22	Depth to saturated zone	1.00	Depth to saturated zone	0.22
				Cutbanks cave	0.10		
CuB:							
Cotaco	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.22	Depth to saturated zone	1.00	Depth to saturated zone	0.22
				Cutbanks cave	0.10		
Urban land	25	Not rated		Not rated		Not rated	
CuC:							
Cotaco	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	0.63
		Depth to saturated zone	0.22	Slope	0.63	Depth to saturated zone	0.22
				Cutbanks cave	0.10		
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.05
		Frost action	0.50	Cutbanks cave	0.10		
Latham	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15	Depth to saturated zone	0.05
DlE:							
Dormont	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.05
		Frost action	0.50	Cutbanks cave	0.10		
Latham	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15	Depth to saturated zone	0.05

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GiD:							
Gilpin--------------	70	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
GiE:							
Gilpin--------------	80	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
GlF:							
Gilpin--------------	70	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
GmE:							
Gilpin--------------	40	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
Matewan-------------	35	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
GpC:							
Gilpin--------------	55	Somewhat limited		Very limited		Not rated	
		Slope	0.63	Depth to hard bedrock	1.00		
		Frost action	0.50	Depth to soft bedrock	0.64		
		Depth to hard bedrock	0.20	Slope	0.63		
Upshur--------------	25	Very limited		Somewhat limited		Not rated	
		Shrink-swell	1.00	Slope	0.63		
		Slope	0.63	Too clayey	0.59		
		Frost action	0.50	Cutbanks cave	0.10		
GpD:							
Gilpin--------------	55	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
Upshur--------------	25	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	1.00	Too clayey	0.59		
		Frost action	0.50	Cutbanks cave	0.10		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
GpE:							
Gilpin	50	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
Upshur	20	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	1.00	Too clayey	0.59		
		Frost action	0.50	Cutbanks cave	0.10		
GpF:							
Gilpin	50	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
Upshur	25	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	1.00	Too clayey	0.59		
		Frost action	0.50	Cutbanks cave	0.10		
GrE:							
Gilpin	45	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
Wharton	30	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	1.00	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Gs:							
Grigsby	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80		
				Depth to saturated zone	0.24		
Gt:							
Grigsby	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to saturated zone	0.24		
Gu:							
Guyan	85	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Cutbanks cave	0.10		
		Flooding	0.40				

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
HMF:							
Highsplint----------	35	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Matewan-------------	25	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
Cloverlick----------	15	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
HuE:							
Highsplint----------	45	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Urban land----------	35	Not rated		Not rated		Not rated	
Hy:							
Holly---------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
KaA:							
Kanawha-------------	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
KaB:							
Kanawha-------------	70	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
KfB:							
Kaymine-------------	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.68
		Frost action	0.50	Cutbanks cave	0.10		
Fiveblock-----------	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	0.10	Large stones content	0.68
						Gravel content	0.38
						Droughty	0.34
KfF:							
Kaymine-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.68
		Frost action	0.50	Cutbanks cave	0.10		
Fiveblock-----------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Large stones content	0.68
						Gravel content	0.38

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
KmF:							
Kaymine	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.57	Large stones content	0.57	Large stones content	0.68
		Frost action	0.50	Cutbanks cave	0.10		
Cedarcreek	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	0.88	Large stones content	0.99
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.32
Matewan	20	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
LgC:							
Latham	55	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Slope	0.63
		Shrink-swell	1.00	Slope	0.63	Depth to bedrock	0.16
		Slope	0.63	Depth to soft bedrock	0.15	Depth to saturated zone	0.05
Gilpin	30	Somewhat limited		Very limited		Not rated	
		Slope	0.63	Depth to hard bedrock	1.00		
		Frost action	0.50	Depth to soft bedrock	0.64		
		Depth to hard bedrock	0.20	Slope	0.63		
LgD:							
Latham	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15	Depth to saturated zone	0.05
Gilpin	35	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Frost action	0.50	Slope	1.00		
		Depth to hard bedrock	0.20	Depth to soft bedrock	0.64		
LiD:							
Lily	70	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.01	Slope	1.00		
				Cutbanks cave	0.10		
LiE:							
Lily	75	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard	1.00		
		Depth to hard bedrock	0.01	bedrock	1.00		
				Slope			
				Cutbanks cave	0.10		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Lo:							
Lobdell	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
				Cutbanks cave	0.10		
MlE:							
Matewan	45	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
Latham	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.16
		Shrink-swell	1.00	Depth to soft bedrock	0.15	Depth to saturated zone	0.05
MPF:							
Matewan	50	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
Pineville	25	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Guyandotte	25	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Large stones content	0.10	Cutbanks cave	0.10		
				Large stones content	0.10		
Mr:							
Middlebury	75	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Flooding	0.80		
Ms:							
Moshannon	70	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	1.00	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
				Depth to saturated zone	0.15		
Ne:							
Nelse	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Slope	1.00	Flooding	1.00
		Slope	1.00	Flooding	0.80	Slope	1.00
				Depth to saturated zone	0.15		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
Or:							
Orrville------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
PvE:							
Pineville-----------	70	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
RmF:							
Rayne---------------	60	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Matewan-------------	25	Very limited		Very limited		Not rated	
		Slope	1.00	Depth to hard bedrock	1.00		
		Depth to hard bedrock	0.15	Slope	1.00		
				Cutbanks cave	0.10		
Sc:							
Senecaville---------	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00	Flooding	0.60	Depth to saturated zone	0.22
		Shrink-swell	0.22	Cutbanks cave	0.10		
SeA:							
Sensabaugh----------	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to saturated zone	0.15		
SfB:							
Sensabaugh----------	80	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
ShF:							
Sharpcrest----------	50	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Depth to hard bedrock	0.61		
				Cutbanks cave	0.10		
Hazleton------------	25	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Depth to hard bedrock	0.42		
				Cutbanks cave	0.10		
SkC:							
Shelocta------------	60	Somewhat limited		Somewhat limited		Not rated	
		Slope	0.63	Slope	0.63		
		Frost action	0.50	Cutbanks cave	0.10		
Beech---------------	30	Somewhat limited		Very limited		Not rated	
		Slope	0.63	Depth to saturated zone	1.00		
		Shrink-swell	0.50	Slope	0.63		
		Frost action	0.50	Cutbanks cave	0.10		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
SlD:							
Shelocta------------	60	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Beech---------------	40	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	0.50	Depth to saturated zone	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
SlE:							
Shelocta------------	60	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Beech---------------	40	Very limited		Very limited		Not rated	
		Slope	1.00	Slope	1.00		
		Shrink-swell	0.50	Depth to saturated zone	1.00		
		Frost action	0.50	Cutbanks cave	0.10		
Sm:							
Skidmore------------	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Depth to saturated zone	0.82	Droughty	0.42
				Flooding	0.80	Gravel content	0.04
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	
VaC:							
Vandalia------------	80	Very limited		Somewhat limited		Somewhat limited	
		Shrink-swell	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Depth to saturated zone	0.18		
		Frost action	0.50	Too clayey	0.12		
VnD:							
Vandalia------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.18		
		Frost action	0.50	Too clayey	0.12		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VnE:							
Vandalia------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Depth to saturated zone	0.18		
		Frost action	0.50	Too clayey	0.12		
Yg:							
Yeager--------------	90	Very limited		Very limited		Not rated	
		Flooding	1.00	Cutbanks cave	1.00		
				Flooding	0.80		
				Depth to saturated zone	0.15		

Table 14a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:					
Allegheny-----------	90	Very limited		Somewhat limited	
		Large stones content	1.00	Slope	0.92
		Depth to bedrock	0.78	Seepage	0.50
		Slow water movement	0.50	Depth to hard bedrock	0.42
AgC:					
Allegheny-----------	90	Very limited		Very limited	
		Large stones content	1.00	Slope	1.00
		Depth to bedrock	0.78	Seepage	0.50
		Slope	0.63	Depth to hard bedrock	0.42
BeD:					
Beech---------------	80	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slope	1.00		
		Slow water movement	1.00		
BeE:					
Beech---------------	70	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slope	1.00		
		Slow water movement	1.00		
BSF:					
Berks---------------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00		
Shelocta------------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
CeF:					
Cedarcreek----------	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	1.00
		Slow water movement	0.32	Seepage	0.68
Rock outcrop--------	15	Not rated		Not rated	

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Ch:					
Chagrin	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to saturated zone	0.40		
CoA:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
CoB:					
Cotaco	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
				Slope	0.92
CuB:					
Cotaco	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
				Slope	0.32
Urban land	25	Not rated		Not rated	
CuC:					
Cotaco	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
Urban land	25	Not rated		Not rated	
DlD:					
Dormont	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.21
Latham	35	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
DlE:					
Dormont	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	0.21

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
DlE:					
Latham	25	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
GiD:					
Gilpin	70	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	1.00		
		Slow water movement	0.50		
GiE:					
Gilpin	80	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
GlF:					
Gilpin	70	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
GmE:					
Gilpin	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.50	Slope	1.00
Matewan	35	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
GpC:					
Gilpin	55	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	0.63		
		Slow water movement	0.50		
Upshur	25	Very limited		Not rated	
		Slow water movement	1.00		
		Depth to bedrock	0.89		
		Slope	0.63		
GpD:					
Gilpin	55	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
GpD:					
Upshur--------------	25	Very limited		Not rated	
		Slow water movement	1.00		
		Slope	1.00		
		Depth to bedrock	0.89		
GpE:					
Gilpin--------------	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
Upshur--------------	20	Very limited		Not rated	
		Slow water movement	1.00		
		Slope	1.00		
		Depth to bedrock	0.89		
GpF:					
Gilpin--------------	50	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
Upshur--------------	25	Very limited		Not rated	
		Slow water movement	1.00		
		Slope	1.00		
		Depth to bedrock	0.89		
GrE:					
Gilpin--------------	45	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
Wharton-------------	30	Very limited		Not rated	
		Slow water movement	1.00		
		Depth to saturated zone	1.00		
		Slope	1.00		
Gs:					
Grigsby-------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Depth to saturated zone	0.02
		Depth to saturated zone	0.65		
Gt:					
Grigsby-------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Depth to saturated zone	0.02
		Depth to saturated zone	0.65		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Gu:					
Guyan	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
HMF:					
Highsplint	35	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
Matewan	25	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	1.00		
		Seepage, bottom layer	1.00		
Cloverlick	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00		
		Slow water movement	0.50		
HuE:					
Highsplint	45	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Depth to bedrock	0.01		
Urban land	35	Not rated		Not rated	
Hy:					
Holly	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.82	Seepage	0.27
KaA:					
Kanawha	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
KaB:					
Kanawha	70	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.92
				Seepage	0.50
KfB:					
Kaymine	45	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Large stones content	1.00
		Large stones content	0.57	Slope	0.32

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
KfB:					
Fiveblock-----------	25	Somewhat limited		Somewhat limited	
		Slow water movement	0.32	Seepage	0.68
				Slope	0.32
				Large stones content	0.14
KfF:					
Kaymine-------------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Large stones content	1.00
		Large stones content	0.57		
Fiveblock-----------	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.32	Seepage	0.68
				Large stones content	0.14
KmF:					
Kaymine-------------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Large stones content	1.00
		Large stones content	0.57		
Cedarcreek----------	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Large stones content	0.88	Large stones content	1.00
		Slow water movement	0.32	Seepage	0.68
Matewan-------------	20	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
LgC:					
Latham--------------	55	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00
Gilpin--------------	30	Very limited		Not rated	
		Depth to bedrock	1.00		
		Slope	0.63		
		Slow water movement	0.50		
LgD:					
Latham--------------	40	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
LgD:					
Gilpin----------------	35	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Slow water movement	0.50		
LiD:					
Lily------------------	70	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
LiE:					
Lily------------------	75	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
Lo:					
Lobdell---------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00		
MlE:					
Matewan---------------	45	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Depth to bedrock	1.00		
Latham----------------	30	Very limited		Very limited	
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00
MPF:					
Matewan---------------	50	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Depth to bedrock	1.00		
Pineville-------------	25	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	0.50		
Guyandotte------------	25	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Large stones content	0.10		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Mr:					
Middlebury----------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00		
Ms:					
Moshannon-----------	70	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.50	Seepage	0.50
		Depth to saturated zone	0.40		
Ne:					
Nelse---------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00
Or:					
Orrville------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.82
PvE:					
Pineville-----------	70	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	0.50		
RmF:					
Rayne---------------	60	Very limited		Not rated	
		Slope	1.00		
		Depth to bedrock	0.86		
		Slow water movement	0.50		
Matewan-------------	25	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Depth to bedrock	1.00		
Sc:					
Senecaville---------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SeA:					
Sensabaugh----------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00		
		Depth to saturated zone	0.40		
SfB:					
Sensabaugh----------	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Bottom layer	1.00	Slope	0.92
		Flooding	0.40	Flooding	0.40
ShF:					
Sharpcrest----------	50	Very limited		Not rated	
		Slope	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
		Depth to bedrock	0.86		
Hazleton------------	25	Very limited		Not rated	
		Slope	1.00		
		Filtering capacity	1.00		
		Seepage	1.00		
		Bottom layer	1.00		
SkC:					
Shelocta------------	60	Somewhat limited		Not rated	
		Slope	0.63		
		Slow water movement	0.50		
Beech---------------	30	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slow water movement	1.00		
		Slope	0.63		
SlD:					
Shelocta------------	60	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	0.50		
Beech---------------	40	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slope	1.00		
		Slow water movement	1.00		
SlE:					
Shelocta------------	60	Very limited		Not rated	
		Slope	1.00		
		Slow water movement	0.50		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
SlE:					
Beech	40	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slope	1.00		
		Slow water movement	1.00		
Sm:					
Skidmore	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage	1.00	Depth to saturated zone	0.99
		Bottom layer	1.00		
Ud:					
Udorthents	85	Not rated		Not rated	
UkB:					
Urban land	50	Not rated		Not rated	
Kanawha	35	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
UuB:					
Udorthents	50	Not rated		Not rated	
Urban land	25	Not rated		Not rated	
Uw:					
Udorthents	100	Not rated		Not rated	
VaC:					
Vandalia	80	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
		Depth to saturated zone	0.50		
VnD:					
Vandalia	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
		Depth to saturated zone	0.50		
VnE:					
Vandalia	70	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
		Depth to saturated zone	0.50		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Yg:					
Yeager--------------	90	Very limited		Not rated	
		Flooding	1.00		
		Filtering capacity	1.00		
		Seepage	1.00		
		Bottom layer	1.00		

Table 14b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	90	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.42	Large stones	1.00
		Large stones	1.00			Too clayey	0.50
		Too clayey	0.50			Depth to bedrock	0.42
AgC:							
Allegheny-----------	90	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.63	Large stones	1.00
		Large stones	1.00	Depth to bedrock	0.42	Slope	0.63
		Slope	0.63			Too clayey	0.50
BeD:							
Beech---------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Too clayey	0.50			Too clayey	0.50
BeE:							
Beech---------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Too clayey	0.50			Too clayey	0.50
BSF:							
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
		Bottom layer	1.00			Seepage	0.21
Shelocta------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.35
CeF:							
Cedarcreek----------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.90			Large stones content	0.90
						Gravel content	0.03
Rock outcrop--------	15	Not rated		Very limited		Not rated	
				Slope	1.00		
Ch:							
Chagrin-------------	75	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
CoA:							
Cotaco--------------	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Too clayey	0.50			Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
CoB:							
Cotaco	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Too clayey	0.50			Too clayey	0.50
CuB:							
Cotaco	40	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Too clayey	0.50			Too clayey	0.50
Urban land	25	Not rated		Very limited		Not rated	
				Depth to saturated zone	1.00		
				Flooding	0.20		
CuC:							
Cotaco	40	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
Urban land	25	Not rated		Very limited		Not rated	
				Depth to saturated zone	1.00		
				Slope	0.63		
				Flooding	0.20		
DlD:							
Dormont	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Depth to bedrock	1.00	Depth to bedrock	0.14	Too clayey	0.50
Latham	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
DlE:							
Dormont	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Depth to bedrock	1.00	Depth to bedrock	0.14	Too clayey	0.50
Latham	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
GiD:							
Gilpin	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
GiE:							
Gilpin	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
GlF:							
Gilpin	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
GmE:							
Gilpin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Matewan	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00
		Bottom layer	1.00				
GpC:							
Gilpin	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
Upshur	25	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	0.71	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Hard to compact	1.00
		Slope	0.63			Depth to bedrock	0.71
GpD:							
Gilpin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Upshur	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
GpE:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Upshur	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
GpF:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
GpF:							
Upshur--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.71	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
GrE:							
Gilpin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
Wharton-------------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.88
		Depth to bedrock	1.00	Depth to bedrock	0.50	Too clayey	0.50
Gs:							
Grigsby-------------	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
		Bottom layer	1.00				
Gt:							
Grigsby-------------	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
		Bottom layer	1.00				
Gu:							
Guyan---------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
HMF:							
Highsplint----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Bottom layer	1.00			Gravel content	0.07
Matewan-------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00
		Bottom layer	1.00				
Cloverlick----------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00			Large stones content	0.06
		Bottom layer				Gravel content	0.04
		Large stones content	0.06				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
HuE:							
Highsplint----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	0.50
		Seepage	1.00			Gravel content	0.07
		Bottom layer	1.00				
Urban land----------	35	Not rated		Very limited		Not rated	
				Slope	1.00		
Hy:							
Holly---------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
KaA:							
Kanawha-------------	85	Not limited		Not limited		Not limited	
KaB:							
Kanawha-------------	70	Not limited		Not limited		Not limited	
KfB:							
Kaymine-------------	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Large stones content	0.61
		Bottom layer	1.00			Seepage	0.50
		Large stones content	0.61				
Fiveblock-----------	25	Not limited		Not limited		Somewhat limited	
						Gravel content	0.25
KfF:							
Kaymine-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Large stones content	0.61
		Bottom layer	1.00			Seepage	0.50
		Large stones content	0.61				
Fiveblock-----------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.25
KmF:							
Kaymine-------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Large stones content	0.61
		Bottom layer				Seepage	0.50
		Large stones content	0.61				
Cedarcreek----------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.90			Large stones content	0.90
						Gravel content	0.03
Matewan-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00
		Bottom layer	1.00				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LgC:							
Latham--------------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
						Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.71
		Too clayey	1.00	Slope	0.63		
Gilpin--------------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
LgD:							
Latham--------------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	1.00	Too clayey	1.00
		Slope	1.00			Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
Gilpin--------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
LiD:							
Lily----------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Bottom layer	1.00				
LiE:							
Lily----------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Seepage	0.50
		Bottom layer	1.00				
Lo:							
Lobdell-------------	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.47
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
		Bottom layer	1.00				
MlE:							
Matewan-------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Bottom layer	1.00				
Latham--------------	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	1.00	Too clayey	1.00
		Slope	1.00			Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
MPF:							
Matewan	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Bottom layer	1.00				
Pineville	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.13
Guyandotte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Large stones content	0.50
		Bottom layer	1.00			Seepage	0.50
		Large stones content	0.50				
Mr:							
Middlebury	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00				
		Bottom layer	1.00				
Ms:							
Moshannon	70	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too sandy	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Too sandy	0.50				
Ne:							
Nelse	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00		
Or:							
Orrville	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
PvE:							
Pineville	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.13
RmF:							
Rayne	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.61	Depth to bedrock	0.61
		Too clayey	0.50			Too clayey	0.50
Matewan	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Bottom layer	1.00				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sc:							
Senecaville	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.88
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
SeA:							
Sensabaugh	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.79
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.37
		Seepage	1.00	Seepage	1.00		
		Bottom layer	1.00				
SfB:							
Sensabaugh	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.79
		Bottom layer	1.00	Flooding	0.40	Gravel content	0.37
		Flooding	0.40				
ShF:							
Sharpcrest	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	0.61
		Seepage	1.00	Depth to bedrock	0.61	Seepage	0.50
		Bottom layer	1.00				
Hazleton	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage	1.00	Depth to bedrock	0.42	Depth to bedrock	0.42
		Bottom layer	1.00				
SkC:							
Shelocta	60	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Too clayey	0.50
		Too clayey	0.50				
Beech	30	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
SlD:							
Shelocta	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Too clayey	0.50
		Too clayey	0.50				
Beech	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Too clayey	0.50			Too clayey	0.50
SlE:							
Shelocta	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Too clayey	0.50
		Too clayey	0.50				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
SlE:							
Beech	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Too clayey	0.50			Too clayey	0.50
Sm:							
Skidmore	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	0.50
		Depth to bedrock	1.00	Seepage	1.00	Large stones content	0.25
Ud:							
Udorthents	85	Not rated		Very limited		Not rated	
				Slope	1.00		
UkB:							
Urban land	50	Not rated		Not limited		Not rated	
Kanawha	35	Not limited		Not limited		Not limited	
UuB:							
Udorthents	50	Not rated		Somewhat limited		Not rated	
				Flooding	0.40		
Urban land	25	Not rated		Somewhat limited		Not rated	
				Flooding	0.40		
Uw:							
Udorthents	100	Not rated		Very limited		Not rated	
				Slope	1.00		
VaC:							
Vandalia	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.63	Slope	0.63
		Slope	0.63				
VnD:							
Vandalia	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
VnE:							
Vandalia	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00				
Yg:							
Yeager	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Too sandy	1.00	Seepage	1.00		

Table 15a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
AgB:					
Allegheny-----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
AgC:					
Allegheny-----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BeD:					
Beech---------------	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BeE:					
Beech---------------	70	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BSF:					
Berks---------------	40	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Shelocta------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CeF:					
Cedarcreek----------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop--------	15	Not rated		Not rated	
Ch:					
Chagrin-------------	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CoA:					
Cotaco--------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CoB:					
Cotaco--------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
CuB:					
Cotaco--------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Urban land----------	25	Not rated		Not rated	
CuC:					
Cotaco--------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Urban land----------	25	Not rated		Not rated	
DlD:					
Dormont-------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Latham--------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DlE:					
Dormont-------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Latham--------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GiD:					
Gilpin--------------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GiE:					
Gilpin--------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GlF:					
Gilpin--------------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GmE:					
Gilpin--------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Matewan-------------	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
GpC:					
Gilpin--------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
GpC:					
Upshur--------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpD:					
Gilpin--------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Upshur--------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpE:					
Gilpin--------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Upshur--------------	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpF:					
Gilpin--------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Upshur--------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GrE:					
Gilpin--------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Wharton-------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Gs:					
Grigsby-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
Gt:					
Grigsby-------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
Gu:					
Guyan---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
HMF:					
Highsplint----------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
HMF:					
Matewan-------------	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Cloverlick----------	15	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
HuE:					
Highsplint----------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Urban land----------	35	Not rated		Not rated	
Hy:					
Holly---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KaA:					
Kanawha-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KaB:					
Kanawha-------------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
KfB:					
Kaymine-------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fiveblock-----------	25	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
KfF:					
Kaymine-------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Fiveblock-----------	25	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
KmF:					
Kaymine-------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cedarcreek----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Matewan-------------	20	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
LgC:					
Latham--------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Gilpin--------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LgD:					
Latham--------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Gilpin--------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LiD:					
Lily----------------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LiE:					
Lily----------------	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lo:					
Lobdell-------------	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MlE:					
Matewan-------------	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Latham--------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MPF:					
Matewan-------------	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Pineville-----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Guyandotte----------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Mr:					
Middlebury----------	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
Ms:					
Moshannon	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ne:					
Nelse	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Or:					
Orrville	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
PvE:					
Pineville	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RmF:					
Rayne	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Matewan	25	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Sc:					
Senecaville	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SeA:					
Sensabaugh	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SfB:					
Sensabaugh	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ShF:					
Sharpcrest	50	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.00	Bottom layer	0.07
Hazleton	25	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.03
SkC:					
Shelocta	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Beech	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
SlD:					
Shelocta	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Beech	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
SlE:					
Shelocta	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Beech	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Sm:					
Skidmore	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ud:					
Udorthents	85	Not rated		Not rated	
UkB:					
Urban land	50	Not rated		Not rated	
Kanawha	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
UuB:					
Udorthents	50	Not rated		Not rated	
Urban land	25	Not rated		Not rated	
Uw:					
Udorthents	100	Not rated		Not rated	
VaC:					
Vandalia	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
VnD:					
Vandalia	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
VnE:					
Vandalia	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Yg:					
Yeager	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.09

Table 15b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Depth to bedrock	0.58	Too clayey	0.48
		Too acid	0.50			Too acid	0.59
		Too clayey	0.82			Hard to reclaim (rock fragments)	0.88
AgC:							
Allegheny	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Depth to bedrock	0.58	Slope	0.37
		Too acid	0.50			Too clayey	0.48
		Too clayey	0.82			Too acid	0.59
BeD:							
Beech	80	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.54	Wetness depth	0.73	Hard to reclaim (rock fragments)	0.00
		Too clayey	0.92	Shrink-swell	0.94	Rock fragments	0.00
BeE:							
Beech	70	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54	Wetness depth	0.73	Hard to reclaim (rock fragments)	0.00
		Too clayey	0.92	Shrink-swell	0.94	Rock fragments	0.00
BSF:							
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.18	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.35			Depth to bedrock	0.35
		Too acid	0.50			Too acid	0.59
Shelocta	35	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.68			Rock fragments	0.00
		Too clayey	0.82			Hard to reclaim (rock fragments)	0.05
						Too acid	0.50
						Too clayey	0.56
CeF:							
Cedarcreek	70	Fair		Poor		Poor	
		Organic matter content low	0.01	Slope	0.00	Slope	0.00
		Cobble content	0.11	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
Ch:							
Chagrin	75	Fair		Good		Good	
		Organic matter content low	0.32				
		Too acid	0.84				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CoA:							
Cotaco	80	Fair		Fair		Fair	
		Organic matter content low	0.32	Wetness depth	0.50	Wetness depth	0.50
		Too acid	0.50			Rock fragments	0.88
		Water erosion	0.99			Too acid	0.98
CoB:							
Cotaco	80	Fair		Fair		Fair	
		Organic matter content low	0.32	Wetness depth	0.50	Wetness depth	0.50
		Too acid	0.50			Rock fragments	0.88
		Water erosion	0.99			Too acid	0.98
CuB:							
Cotaco	40	Fair		Fair		Fair	
		Organic matter content low	0.32	Wetness depth	0.50	Wetness depth	0.50
		Too acid	0.50			Rock fragments	0.88
		Water erosion	0.99			Too acid	0.98
Urban land	25	Not rated		Not rated		Not rated	
CuC:							
Cotaco	40	Fair		Fair		Fair	
		Organic matter content low	0.32	Wetness depth	0.50	Slope	0.37
		Too acid	0.50			Wetness depth	0.50
		Water erosion	0.99			Rock fragments	0.88
Urban land	25	Not rated		Not rated		Not rated	
DlD:							
Dormont	45	Fair		Fair		Poor	
		Organic matter content low	0.18	Slope	0.50	Slope	0.00
				Wetness depth	0.73	Hard to reclaim (rock fragments)	0.12
		Too acid	0.54	Depth to bedrock	0.87		
		Water erosion	0.90			Too clayey	0.55
Latham	35	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.23	Shrink-swell	0.12	Too clayey	0.00
		Organic matter content low	0.32	Slope	0.50	Rock fragments	0.50
DlE:							
Dormont	50	Fair		Poor		Poor	
		Organic matter content low	0.18	Slope	0.00	Slope	0.00
				Wetness depth	0.73	Hard to reclaim (rock fragments)	0.12
		Too acid	0.54	Depth to bedrock	0.87		
		Water erosion	0.90			Too clayey	0.55
Latham	25	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Droughty	0.23	Depth to bedrock	0.00	Too clayey	0.00
		Organic matter content low	0.32	Shrink-swell	0.12	Rock fragments	0.50

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
GiD:							
Gilpin	70	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.32	Slope	0.50	Rock fragments	0.00
						Too clayey	0.31
		Depth to bedrock	0.35				
GiE:							
Gilpin	80	Fair		Poor		Poor	
		Droughty	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.32	Depth to bedrock	0.00	Rock fragments	0.00
						Too clayey	0.31
		Depth to bedrock	0.35				
GlF:							
Gilpin	70	Fair		Poor		Poor	
		Droughty	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.32	Depth to bedrock	0.00	Rock fragments	0.00
						Too clayey	0.31
		Depth to bedrock	0.35				
GmE:							
Gilpin	40	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.32	Slope	0.00	Rock fragments	0.00
						Too clayey	0.31
		Depth to bedrock	0.35				
Matewan	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
GpC:							
Gilpin	55	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.32			Too clayey	0.31
						Depth to bedrock	0.35
		Depth to bedrock	0.35				
Upshur	25	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Too clayey	0.00
		Too acid	0.20	Depth to bedrock	0.29	Slope	0.37
		Organic matter content low	0.84			Too acid	0.82
GpD:							
Gilpin	55	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.32	Slope	0.50	Rock fragments	0.00
						Too clayey	0.31
		Depth to bedrock	0.35				
Upshur	25	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Slope	0.00
		Too acid	0.20	Depth to bedrock	0.29	Too clayey	0.00
		Organic matter content low	0.84	Slope	0.50	Too acid	0.82

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
GpE:							
Gilpin	50	Fair		Poor		Poor	
		Droughty	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35			Too clayey	0.31
Upshur	20	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Too acid	0.20	Shrink-swell	0.12	Too clayey	0.00
		Organic matter content low	0.84	Depth to bedrock	0.29	Too acid	0.82
GpF:							
Gilpin	50	Fair		Poor		Poor	
		Droughty	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.32	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35			Too clayey	0.31
Upshur	25	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Too acid	0.20	Shrink-swell	0.12	Too clayey	0.00
		Organic matter content low	0.84	Depth to bedrock	0.29	Too acid	0.82
GrE:							
Gilpin	45	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.32	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.35			Too clayey	0.31
Wharton	30	Fair		Poor		Poor	
		Organic matter content low	0.32	Slope	0.00	Slope	0.00
		Too acid	0.50	Wetness depth	0.50	Wetness depth	0.50
		Too clayey	0.82	Depth to bedrock	0.50	Too clayey	0.51
Gs:							
Grigsby	80	Fair		Good		Fair	
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.88
		Too acid	0.99				
Gt:							
Grigsby	80	Fair		Good		Fair	
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.88
		Too acid	0.99				
Gu:							
Guyan	85	Fair		Poor		Poor	
		Too acid	0.20	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.32			Too clayey	0.57
		Too clayey	0.92			Too acid	0.76

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
HMF:							
Highsplint----------	35	Fair		Poor		Poor	
		Too acid	0.20	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Cobble content	0.78	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
Matewan-------------	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
Cloverlick----------	15	Fair		Poor		Poor	
		Organic matter content low	0.08	Slope	0.00	Slope	0.00
		Too acid	0.20	Cobble content	0.67	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.94			Rock fragments	0.00
HuE:							
Highsplint----------	45	Fair		Poor		Poor	
		Too acid	0.20	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Cobble content	0.78	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
Urban land----------	35	Not rated		Not rated		Not rated	
Hy:							
Holly---------------	85	Fair		Poor		Poor	
		Organic matter content low	0.32	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.88			Rock fragments	0.88
KaA:							
Kanawha-------------	85	Fair		Good		Good	
		Organic matter content low	0.32				
		Too acid	0.84				
KaB:							
Kanawha-------------	70	Fair		Good		Good	
		Organic matter content low	0.32				
		Too acid	0.84				
KfB:							
Kaymine-------------	45	Fair		Poor		Poor	
		Organic matter content low	0.01	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.39			Rock fragments	0.00
Fiveblock-----------	25	Fair		Fair		Poor	
		Organic matter content low	0.01	Cobble content	0.55	Rock fragments	0.00
		Droughty	0.89			Hard to reclaim (rock fragments)	0.00
KfF:							
Kaymine-------------	50	Fair		Poor		Poor	
		Organic matter content low	0.01	Slope	0.00	Slope	0.00
		Cobble content	0.39	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
KfF:							
Fiveblock	25	Fair		Poor		Poor	
		Organic matter content low	0.01	Slope	0.00	Slope	0.00
		Droughty	0.89	Cobble content	0.55	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
KmF:							
Kaymine	35	Fair		Poor		Poor	
		Organic matter content low	0.01	Slope	0.00	Slope	0.00
		Cobble content	0.39	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
						Rock fragments	0.00
Cedarcreek	25	Fair		Poor		Poor	
		Organic matter content low	0.01	Slope	0.00	Slope	0.00
		Cobble content	0.11	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
Matewan	20	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
LgC:							
Latham	55	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.23	Shrink-swell	0.12	Slope	0.37
		Organic matter content low	0.32	Wetness depth	0.73	Rock fragments	0.50
Gilpin	30	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.32			Too clayey	0.31
		Depth to bedrock	0.35			Depth to bedrock	0.35
LgD:							
Latham	40	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.23	Shrink-swell	0.12	Too clayey	0.00
		Organic matter content low	0.32	Slope	0.50	Rock fragments	0.50
Gilpin	35	Fair		Poor		Poor	
		Droughty	0.08	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.32	Slope	0.50	Rock fragments	0.00
		Depth to bedrock	0.35			Too clayey	0.31
LiD:							
Lily	70	Fair		Poor		Poor	
		Too acid	0.50	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.50	Slope	0.50	Too clayey	0.54
		Droughty	0.77			Too acid	0.76

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
LiE:							
Lily----------------	75	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Depth to bedrock	0.00	Too clayey	0.54
		Droughty	0.77			Too acid	0.76
Lo:							
Lobdell-------------	75	Fair		Fair		Fair	
		Too acid	0.54	Wetness depth	0.89	Wetness depth	0.89
		Organic matter content low	0.92				
		Water erosion	0.99				
MlE:							
Matewan-------------	45	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
Latham--------------	30	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Droughty	0.23	Depth to bedrock	0.00	Too clayey	0.00
		Organic matter content low	0.32	Shrink-swell	0.12	Rock fragments	0.50
MPF:							
Matewan-------------	50	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
Pineville-----------	25	Fair		Poor		Poor	
		Too acid	0.12	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Rock fragments	0.00
						Too acid	0.59
Guyandotte----------	25	Fair		Poor		Poor	
		Cobble content	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.68	Cobble content	0.10	Hard to reclaim (rock fragments)	0.00
		Too acid	0.84			Rock fragments	0.00
Mr:							
Middlebury----------	75	Fair		Fair		Fair	
		Too acid	0.84	Wetness depth	0.76	Hard to reclaim (rock fragments)	0.12
						Wetness depth	0.76
						Rock fragments	0.88
Ms:							
Moshannon-----------	70	Fair		Good		Good	
		Too acid	0.80				
		Organic matter content low	0.92				
		Water erosion	0.99				
Ne:							
Nelse---------------	80	Fair		Fair		Poor	
		Too acid	0.84	Slope	0.50	Slope	0.00
		Water erosion	0.99				

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Or:							
Orrville------------	80	Fair		Poor		Poor	
		Organic matter content low	0.88	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.99			Rock fragments	0.88
		Water erosion	0.99				
PvE:							
Pineville-----------	70	Fair		Poor		Poor	
		Too acid	0.12	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Rock fragments	0.00
						Too acid	0.59
RmF:							
Rayne---------------	60	Fair		Poor		Poor	
		Too acid	0.16	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Depth to bedrock	0.39	Rock fragments	0.00
		Too clayey	0.82			Too clayey	0.54
Matewan-------------	25	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Too acid	0.50	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.84	Cobble content	0.81	Too acid	0.76
Sc:							
Senecaville---------	90	Fair		Fair		Fair	
		Organic matter content low	0.08	Wetness depth	0.50	Wetness depth	0.50
		Too acid	0.84				
SeA:							
Sensabaugh----------	80	Fair		Good		Poor	
		Organic matter content low	0.05			Hard to reclaim (rock fragments)	0.00
		Too acid	0.99			Rock fragments	0.88
SfB:							
Sensabaugh----------	80	Fair		Good		Poor	
		Organic matter content low	0.05			Hard to reclaim (rock fragments)	0.00
		Too acid	0.99			Rock fragments	0.88
ShF:							
Sharpcrest----------	50	Fair		Poor		Poor	
		Too acid	0.50	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Depth to bedrock	0.39	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.32
Hazleton------------	25	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.20	Depth to bedrock	0.58	Rock fragments	0.00
		Droughty	0.93			Hard to reclaim (rock fragments)	0.50
SkC:							
Shelocta------------	60	Fair		Good		Fair	
		Organic matter content low	0.12			Rock fragments	0.02
		Too acid	0.50			Slope	0.37
		Too clayey	0.92			Too acid	0.50

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SkC:							
Beech---------------	30	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.73	Hard to reclaim (rock fragments)	0.00
		Too acid	0.54	Shrink-swell	0.94	Rock fragments	0.00
		Too clayey	0.92			Slope	0.37
SlD:							
Shelocta------------	60	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.50			Rock fragments	0.02
		Too clayey	0.92			Too acid	0.50
Beech---------------	40	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.54	Wetness depth	0.73	Hard to reclaim (rock fragments)	0.00
		Too clayey	0.92	Shrink-swell	0.94	Rock fragments	0.00
SlE:							
Shelocta------------	60	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50			Rock fragments	0.02
		Too clayey	0.92			Too acid	0.50
Beech---------------	40	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54	Wetness depth	0.73	Hard to reclaim (rock fragments)	0.00
		Too clayey	0.92	Shrink-swell	0.94	Rock fragments	0.00
Sm:							
Skidmore------------	80	Fair		Fair		Poor	
		Organic matter content low	0.12	Cobble content	0.64	Hard to reclaim (rock fragments)	0.00
		Droughty	0.74			Rock fragments	0.00
		Cobble content	0.75				
Ud:							
Udorthents----------	85	Not rated		Not rated		Not rated	
UkB:							
Urban land----------	50	Not rated		Not rated		Not rated	
Kanawha-------------	35	Fair		Good		Good	
		Organic matter content low	0.32				
		Too acid	0.84				
UuB:							
Udorthents----------	50	Not rated		Not rated		Not rated	
Urban land----------	25	Not rated		Not rated		Not rated	
Uw:							
Udorthents----------	100	Not rated		Not rated		Not rated	

Table 15b.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VaC:							
Vandalia------------	80	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Too clayey	0.00
		Organic matter content low	0.32			Slope	0.37
		Too acid	0.54			Hard to reclaim (rock fragments)	0.50
VnD:							
Vandalia------------	85	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.12	Slope	0.00
		Organic matter content low	0.32	Slope	0.50	Too clayey	0.00
		Too acid	0.54			Hard to reclaim (rock fragments)	0.50
VnE:							
Vandalia------------	70	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.32	Shrink-swell	0.12	Too clayey	0.00
		Too acid	0.54			Hard to reclaim (rock fragments)	0.50
Yg:							
Yeager--------------	90	Fair		Good		Fair	
		Organic matter content low	0.50			Rock fragments	0.97
		Too acid	0.54				
		Droughty	0.89				

Table 16.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	0.10	Thin layer	0.11		
AgC:							
Allegheny-----------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Large stones content	1.00	Depth to water	1.00
		Depth to bedrock	0.10	Thin layer	0.11		
		Slope	0.01				
BeD:							
Beech---------------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.96	Slow refill	0.30
		Slope	0.12			Cutbanks cave	0.10
						Depth to saturated zone	0.02
BeE:							
Beech---------------	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.96	Slow refill	0.30
		Slope	0.50			Cutbanks cave	0.10
						Depth to saturated zone	0.02
BSF:							
Berks---------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.17				
Shelocta------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70				
CeF:							
Cedarcreek----------	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.88	Depth to water	1.00
		Seepage	0.81				
Rock outcrop--------	15	Very limited		Not rated		Not rated	
		Slope	1.00				
Ch:							
Chagrin-------------	75	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
						Slow refill	0.30
CoA:							
Cotaco--------------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
				Depth to saturated zone	0.99	Cutbanks cave	0.10

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
CoB:							
Cotaco	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
				Depth to saturated zone	0.99	Cutbanks cave	0.10
CuB:							
Cotaco	40	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
				Depth to saturated zone	0.99	Cutbanks cave	0.10
Urban land	25	Not limited		Not rated		Not rated	
CuC:							
Cotaco	40	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Piping	1.00	Slow refill	0.30
		Slope	0.01	Depth to saturated zone	0.99	Cutbanks cave	0.10
Urban land	25	Somewhat limited		Not rated		Not rated	
		Slope	0.01				
DlD:							
Dormont	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.45	Depth to saturated zone	0.96	Slow refill	0.55
		Slope	0.12			Cutbanks cave	0.10
		Depth to bedrock	0.01	Piping	0.68	Depth to saturated zone	0.02
				Thin layer	0.03		
Latham	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.12	Depth to saturated zone	0.96	Slow refill	1.00
		Depth to bedrock	0.05			Cutbanks cave	0.10
				Thin layer	0.74	Depth to saturated zone	0.02
				Piping	0.05		
DlE:							
Dormont	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.50	Depth to saturated zone	0.96	Slow refill	0.55
		Seepage	0.45			Cutbanks cave	0.10
		Depth to bedrock	0.01	Piping	0.68	Depth to saturated zone	0.02
				Thin layer	0.03		
Latham	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Depth to saturated zone	0.96	Slow refill	1.00
		Depth to bedrock	0.05			Cutbanks cave	0.10
				Thin layer	0.74	Depth to saturated zone	0.02
				Piping	0.05		
GiD:							
Gilpin	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
GiE:							
Gilpin	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
GlF:							
Gilpin--------------	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
GmE:							
Gilpin--------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Matewan-------------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74				
		Slope	0.50				
GpC:							
Gilpin--------------	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Upshur--------------	25	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Hard to pack	0.20	Depth to water	1.00
		Slope	0.01	Thin layer	0.19		
		Depth to bedrock	0.01				
GpD:							
Gilpin--------------	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Upshur--------------	25	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Hard to pack	0.20	Depth to water	1.00
		Slope	0.12	Thin layer	0.19		
		Depth to bedrock	0.01				
GpE:							
Gilpin--------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Upshur--------------	20	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Hard to pack	0.20	Depth to water	1.00
		Slope	0.50	Thin layer	0.19		
		Depth to bedrock	0.01				
GpF:							
Gilpin--------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Upshur--------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.20	Depth to water	1.00
		Seepage	0.70	Thin layer	0.19		
		Depth to bedrock	0.01				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
GrE:							
Gilpin	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
Wharton	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.99	Slow refill	0.30
		Slope	0.28			Cutbanks cave	0.10
		Depth to bedrock	0.01	Piping	0.72		
				Thin layer	0.12		
Gs:							
Grigsby	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Cutbanks cave	1.00
						Depth to saturated zone	0.99
Gt:							
Grigsby	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Cutbanks cave	1.00
						Depth to saturated zone	0.99
Gu:							
Guyan	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.83		
HMF:							
Highsplint	35	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	1.00				
Matewan	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.74				
Cloverlick	15	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
HuE:							
Highsplint	45	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.28				
Urban land	35	Somewhat limited		Not rated		Not rated	
		Slope	0.28				
Hy:							
Holly	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.53	Depth to saturated zone	1.00	Slow refill	0.47
						Cutbanks cave	0.10
				Piping	1.00		
KaA:							
Kanawha	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
KaB:							
Kanawha	70	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
KfB:							
Kaymine	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Large stones content	0.57		
Fiveblock	25	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.81	Seepage	0.01	Depth to water	1.00
KfF:							
Kaymine	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Large stones content	0.57		
Fiveblock	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.01	Depth to water	1.00
		Seepage	0.81				
KmF:							
Kaymine	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Large stones content	0.57		
Cedarcreek	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.88	Depth to water	1.00
		Seepage	0.81				
Matewan	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.74				
LgC:							
Latham	55	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	0.05	Depth to saturated zone	0.96	Slow refill	1.00
		Slope	0.01	Thin layer	0.74	Cutbanks cave	0.10
				Piping	0.05	Depth to saturated zone	0.02
Gilpin	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				
LgD:							
Latham	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.12	Depth to saturated zone	0.96	Slow refill	1.00
		Depth to bedrock	0.05	Thin layer	0.74	Cutbanks cave	0.10
				Piping	0.05	Depth to saturated zone	0.02
Gilpin	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.91	Depth to water	1.00
		Depth to bedrock	0.77				
		Seepage	0.70				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LiD:							
Lily	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.56	Depth to water	1.00
		Depth to bedrock	0.56				
		Slope	0.12				
LiE:							
Lily	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.56	Depth to water	1.00
		Depth to bedrock	0.56				
		Slope	0.50				
Lo:							
Lobdell	75	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	0.10
				Depth to saturated zone	0.86	Depth to saturated zone	0.06
MlE:							
Matewan	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74				
		Slope	0.50				
Latham	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Depth to saturated zone	0.96	Slow refill	1.00
		Depth to bedrock	0.05			Cutbanks cave	0.10
				Thin layer	0.74	Depth to saturated zone	0.02
				Piping	0.05		
MPF:							
Matewan	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.74				
Pineville	25	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Guyandotte	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.10	Depth to water	1.00
		Seepage	1.00				
Mr:							
Middlebury	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.95	Cutbanks cave	1.00
						Depth to saturated zone	0.02
				Seepage	0.06		
Ms:							
Moshannon	70	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Depth to water	1.00
						Slow refill	0.30
Ne:							
Nelse	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.12				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Or:							
Orrville------------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.89	Depth to saturated zone	1.00	Slow refill	0.11
				Piping	1.00	Cutbanks cave	0.10
PvE:							
Pineville-----------	70	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
		Slope	0.50				
RmF:							
Rayne---------------	60	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Piping	0.97	Depth to water	1.00
		Seepage	0.70	Thin layer	0.16		
		Depth to bedrock	0.01				
Matewan-------------	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.74	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.74				
Sc:							
Senecaville---------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.99	Slow refill	0.30
				Piping	0.99	Cutbanks cave	0.10
SeA:							
Sensabaugh----------	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
SfB:							
Sensabaugh----------	80	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
ShF:							
Sharpcrest----------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.16	Depth to water	1.00
		Slope	1.00	Seepage	0.07		
		Depth to bedrock	0.16				
Hazleton------------	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.11	Depth to water	1.00
		Slope	1.00	Seepage	0.07		
		Depth to bedrock	0.10				
SkC:							
Shelocta------------	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.01				
Beech---------------	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.96	Slow refill	0.30
		Slope	0.01			Cutbanks cave	0.10
						Depth to saturated zone	0.02
SlD:							
Shelocta------------	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.12				

Table 16.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SlD:							
Beech	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.96	Slow refill	0.30
		Slope	0.12			Cutbanks cave	0.10
						Depth to saturated zone	0.02
SlE:							
Shelocta	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
		Slope	0.50				
Beech	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	0.96	Slow refill	0.30
		Slope	0.50			Cutbanks cave	0.10
						Depth to saturated zone	0.02
Sm:							
Skidmore	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Cutbanks cave	1.00
				Depth to saturated zone	0.09	Depth to saturated zone	0.54
Ud:							
Udorthents	85	Somewhat limited		Not rated		Not rated	
		Slope	0.72				
UkB:							
Urban land	50	Not limited		Not rated		Not rated	
Kanawha	35	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Depth to water	1.00
UuB:							
Udorthents	50	Not limited		Not rated		Not rated	
Urban land	25	Not limited		Not rated		Not rated	
Uw:							
Udorthents	100	Somewhat limited		Not rated		Not rated	
		Slope	0.72				
VaC:							
Vandalia	80	Somewhat limited		Not limited		Very limited	
		Slope	0.01			Depth to water	1.00
						Slow refill	1.00
VnD:							
Vandalia	85	Somewhat limited		Not limited		Very limited	
		Slope	0.12			Depth to water	1.00
						Slow refill	1.00
VnE:							
Vandalia	70	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to water	1.00
						Slow refill	1.00
Yg:							
Yeager	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.09	Depth to water	1.00

Table 17.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
AgB:												
Allegheny-------	0-8	Loam	CL, CL-ML, ML	A-4	0	0	90-100	80-100	65-100	45-85	0-35	NP-10
	8-36	Clay loam, sandy clay loam, loam, sandy loam	SC, CL, ML, SM	A-6, A-2-4, A-4	0	0	90-100	80-100	65-95	35-80	0-35	NP-15
	36-50	Sandy loam, channery fine sandy loam, channery loam	SM, SC, ML, CL	A-4, A-6, A-2, A-1	---	5-15	70-100	55-100	35-95	20-60	0-35	NP-15
	>50	Bedrock			---	---	---	---	---	---	---	---
AgC:												
Allegheny-------	0-8	Loam	ML, CL-ML, CL	A-4	0	0	90-100	80-100	65-100	45-85	0-35	NP-10
	8-36	Clay loam, sandy clay loam, loam, sandy loam	SC, CL, ML, SM	A-6, A-2-4, A-4	0	0	90-100	80-100	65-95	35-80	0-35	NP-15
	36-50	Sandy loam, channery fine sandy loam, channery loam	SM, SC, ML, CL	A-4, A-6, A-2, A-1	---	5-15	70-100	55-100	35-95	20-60	0-35	NP-15
	>50	Bedrock			---	---	---	---	---	---	---	---
BeD:												
Beech-----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-7	Loam, silt loam	ML, CL-ML	A-4, A-6	0	0-15	65-95	60-90	55-85	35-80	20-35	2-11
	7-52	Channery clay loam, channery loam	ML, CL, SC, GM	A-6, A-4	0	10-25	45-90	40-85	35-80	30-65	25-40	7-14
	52-65	Extremely channery loam, extremely channery clay loam, extremely channery silt loam, very channery loam	ML, CL, SC	A-4, A-2, A-6	0	20-60	40-75	40-75	35-70	15-50	25-35	3-14
BeE:												
Beech-----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-7	Loam, silt loam	ML, CL-ML	A-4, A-6	0	0-15	65-95	60-90	55-85	35-80	20-35	2-11
	7-52	Channery clay loam, channery loam	ML, CL, SC, GM	A-6, A-4	0	10-25	45-90	40-85	35-80	30-65	25-40	7-14
	52-65	Extremely channery loam, extremely channery clay loam, extremely channery silt loam, very channery loam	ML, CL, SC	A-4, A-2, A-6	0	20-60	40-75	40-75	35-70	15-50	25-35	3-14

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
BSF:												
Berks-----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-5	Channery loam, channery silt loam	CL-ML	A-4	0	0-9	60-85	25-85	18-81	14-67	18-36	NP-10
	5-22	Extremely channery silt loam, extremely parachannery silty clay loam, extremely parachannery loam	CL-ML	A-2	0	0-8	52-78	3-56	3-56	2-50	18-36	NP-10
	22-28	Extremely channery silt loam, extremely parachannery loam	GP-GM	A-2	0	0-8	51-59	3-19	2-19	2-16	18-36	NP-10
	28-38	Weathered bedrock			---	---	---	---	---	---	---	---
Shelocta--------	0-.5	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	.5-4	Silt loam, loam	ML	A-4	0	0	59-96	19-93	16-93	13-81	20-38	NP-10
	4-58	Channery silty clay loam, channery silt loam	ML	A-7	0	0	53-92	6-85	4-85	3-81	20-41	NP-12
	58-80	Very channery loam	CL, SC	A-6	0	0	53-92	6-85	4-85	2-70	0-48	NP-28
CeF:												
Cedarcreek------	0-3	Very channery loam, very channery sandy loam, very channery silt loam	GC	A-2, A-4, A-6	0	25-45	45-60	40-55	30-50	20-40	25-35	8-12
	3-65	Very channery loam, very channery sandy loam, very channery silt loam	GC	A-2, A-4	0	30-60	45-60	40-55	30-50	20-40	25-35	8-12
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Ch:												
Chagrin---------	0-12	Loam, silt loam	ML, CL, CL-ML	A-4	0	0	95-100	85-100	80-100	40-80	20-35	NP-12
	12-56	Silt loam, loam, silty clay loam	ML, CL, CL-ML	A-4	0	0	95-100	85-100	80-95	60-90	20-35	NP-12
	56-65	Silt loam, fine sandy loam, loam	ML, CL, SM	A-4, A-6	0	0	95-100	85-100	80-95	45-85	20-35	NP-12
CoA:												
Cotaco----------	0-12	Loam, silt loam	CL-ML, ML, CL	A-4	0	0-5	80-100	75-95	55-85	35-80	0-30	NP-10
	12-39	Clay loam, loam, sandy clay loam, silt loam	CL	A-6	0	0-6	80-100	75-95	55-85	35-80	10-35	5-15
	39-65	Loam, clay loam, sandy clay loam, silt loam	CL, CL-ML, ML	A-4	0	0-6	60-100	50-95	40-90	20-80	10-35	NP-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
CoB:												
Cotaco----------	0-12	Loam, silt loam	ML, CL, CL-ML	A-4	0	0-5	80-100	75-95	55-85	35-80	0-30	NP-10
	12-39	Clay loam, loam, sandy clay loam, silt loam	CL	A-6	0	0-6	80-100	75-95	55-85	35-80	10-35	5-15
	39-65	Loam, clay loam, sandy clay loam, silt loam	ML, CL-ML, CL	A-4	0	0-6	60-100	50-95	40-90	20-80	10-35	NP-10
CuB:												
Cotaco----------	0-12	Loam, silt loam	ML, CL-ML, CL	A-4	0	0-5	80-100	75-95	55-85	35-80	0-30	NP-10
	12-39	Clay loam, loam, sandy clay loam, silt loam	CL	A-6	0	0-6	80-100	75-95	55-85	35-80	10-35	5-15
	39-65	Loam, clay loam, sandy clay loam, silt loam	ML, CL-ML, CL	A-4	0	0-6	60-100	50-95	40-90	20-80	10-35	NP-10
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
CuC:												
Cotaco----------	0-12	Loam, silt loam	CL-ML, ML, CL	A-4	0	0-5	80-100	75-95	55-85	35-80	0-30	NP-10
	12-39	Clay loam, loam, sandy clay loam, silt loam	CL	A-6	0	0-6	80-100	75-95	55-85	35-80	10-35	5-15
	39-65	Loam, clay loam, sandy clay loam, silt loam	CL, CL-ML, ML	A-4	0	0-6	60-100	50-95	40-90	20-80	10-35	NP-10
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
DlD:												
Dormont---------	0-11	Silt loam	CL	A-4	0	0	75-100	70-100	65-95	50-90	20-40	5-15
	11-40	Channery silty clay loam, channery silt loam	ML, CL, CH	A-4, A-6	0	0-20	75-100	70-95	60-95	45-85	35-55	10-30
	40-54	Very channery silty clay loam, very channery silt loam, very channery silty clay, very channery clay	ML, CL, CH	A-4, A-6	0	0-30	65-100	60-95	55-95	40-85	35-55	10-30
	54-58	Bedrock			---	---	---	---	---	---	---	---
Latham----------	0-7	Silt loam	ML, CL-ML, CL	A-6, A-4	0	0-5	85-100	75-100	70-100	65-90	20-40	4-12
	7-29	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
	29-34	Channery silty clay, channery clay, channery clay loam, channery silty clay loam	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	55-85	30-55	10-30
	34-38	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
DlE:												
Dormont---------	0-11	Silt loam	CL	A-4	0	0	75-100	70-100	65-95	50-90	20-40	5-15
	11-40	Channery silty clay loam, channery silt loam	ML, CL, CH	A-4, A-6	0	0-20	75-100	70-95	60-95	45-85	35-55	10-30
	40-54	Very channery silty clay loam, very channery silt loam, very channery silty clay, very channery clay	ML, CL, CH	A-4, A-6	0	0-30	65-100	60-95	55-95	40-85	35-55	10-30
	54-58	Bedrock			---	---	---	---	---	---	---	---
Latham----------	0-7	Silt loam	ML, CL-ML, CL	A-6, A-4	0	0-5	85-100	75-100	70-100	65-90	20-40	4-12
	7-29	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
	29-34	Channery silty clay, channery clay, channery clay loam, channery silty clay loam	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	55-85	30-55	10-30
	34-38	Bedrock			---	---	---	---	---	---	---	---
GiD:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-33	Bedrock			---	---	---	---	---	---	---	---
	>33	Bedrock			---	---	---	---	---	---	---	---
GiE:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	CL, SC	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
GlF:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
GmE:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	>34	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GpC:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	25-40	5-15
	8-41	Clay, silty clay	CH	A-7	0	0	95-100	95-100	85-100	80-100	45-70	20-40
	41-47	Channery clay, channery silty clay	CH	A-7	0	5-15	80-100	65-100	60-100	60-90	45-70	20-40
	47-51	Bedrock			---	---	---	---	---	---	---	---
GpD:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	CL, SC	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	25-40	5-15
	8-41	Clay, silty clay	CH	A-7	0	0	95-100	95-100	85-100	80-100	45-70	20-40
	41-47	Channery clay, channery silty clay	CH	A-7	0	5-15	80-100	65-100	60-100	60-90	45-70	20-40
	47-51	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
GpE:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	25-40	5-15
	8-41	Clay, silty clay	CH	A-7	0	0	95-100	95-100	85-100	80-100	45-70	20-40
	41-47	Channery clay, channery silty clay	CH	A-7	0	5-15	80-100	65-100	60-100	60-90	45-70	20-40
	47-51	Bedrock			---	---	---	---	---	---	---	---
GpF:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Upshur----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	25-40	5-15
	8-41	Clay, silty clay	CH	A-7	0	0	95-100	95-100	85-100	80-100	45-70	20-40
	41-47	Channery clay, channery silty clay	CH	A-7	0	5-15	80-100	65-100	60-100	60-90	45-70	20-40
	47-51	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GrE:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
Wharton---------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-10	Silt loam, loam	ML, CL	A-4, A-6	0	0	95-100	90-100	80-95	70-90	20-30	3-15
	10-37	Silty clay loam, silt loam	CL	A-6	0	0-10	95-100	90-100	80-95	70-90	35-45	10-25
	37-49	Silt loam, silty clay loam	ML, CL	A-4, A-6	0	0-10	90-100	85-100	65-95	60-80	20-30	3-15
	49-53	Bedrock			---	---	---	---	---	---	---	---
Gs:												
Grigsby---------	0-14	Fine sandy loam, sandy loam, loam	SM, SC-SM	A-2-4, A-4	0	0-3	80-100	80-100	50-95	25-50	10-20	NP-5
	14-45	Fine sandy loam, loam, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-3	80-100	80-100	70-100	25-50	10-20	NP-5
	45-65	Gravelly loamy sand, gravelly sandy loam	SM, SC-SM	A-2-4	0	5-15	70-100	70-100	25-100	10-30	5-15	NP-5
Gt:												
Grigsby---------	0-14	Fine sandy loam, sandy loam, loam	SM, SC-SM	A-2-4, A-4	0	0-3	80-100	80-100	50-95	25-50	10-20	NP-5
	14-45	Fine sandy loam, loam, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-3	80-100	80-100	70-100	25-50	10-20	NP-5
	45-65	Gravelly loamy sand, gravelly sandy loam	SM, SC-SM	A-2-4	0	5-15	70-100	70-100	25-100	10-30	5-15	NP-5
Gu:												
Guyan-----------	0-10	Silt loam, loam	CL, CL-ML	A-4	0	0	95-100	95-100	95-100	65-80	20-30	3-10
	10-50	Silty clay loam, silt loam, loam	CL	A-6, A-4	0	0	85-100	85-100	80-100	70-95	25-40	10-18
	50-65	Silty clay loam, loam, silt loam	CL	A-6, A-4	0	0	85-100	85-100	80-100	70-95	25-40	10-18

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
HMF:												
Highsplint------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-11	Loam, silt loam	CL, CL-ML	A-4	0	0	45-95	45-90	40-70	25-65	15-35	5-15
	11-50	Very channery loam, very channery silt loam	CL-ML, CL, GC, SC	A-4	0	5-40	45-75	40-70	35-65	20-60	15-35	NP-12
	50-65	Extremely channery fine sandy loam, very channery loam	GC-GM, SC-SM	A-2-4, A-4	0	5-45	45-75	40-70	35-55	15-40	15-30	NP-10
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	>34	Bedrock			---	---	---	---	---	---	---	---
Cloverlick------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-9	Loam, silt loam	CL, CL-ML	A-4	0	0	45-95	45-90	40-70	25-65	15-35	5-15
	9-50	Very channery loam, very channery silt loam	CL-ML, GC, SC, CL	A-4	0	5-40	45-75	40-70	35-65	20-60	15-35	NP-12
	50-65	Extremely channery loam, extremely channery fine sandy loam	GM, SC-SM, SM, GC-GM	A-2-4	0	30-60	40-75	40-70	30-55	5-20	15-30	NP-10
HuE:												
Highsplint------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-11	Loam, silt loam	CL-ML, CL	A-4	0	0	45-95	45-90	40-70	25-65	15-35	5-15
	11-50	Very channery loam, very channery silt loam	CL-ML, CL, GC, SC	A-4	0	5-40	45-75	40-70	35-65	20-60	15-35	NP-12
	50-65	Extremely channery fine sandy loam, very channery loam	SC-SM, GC-GM	A-2-4, A-4	0	5-45	45-75	40-70	35-55	15-40	15-30	NP-10
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Hy:												
Holly-----------	0-6	Loam, silt loam	ML	A-4	0	0	90-100	85-100	80-100	40-90	25-35	NP-10
	6-35	Silt loam, loam, sandy loam, silty clay loam	ML	A-4	0	0	85-100	75-100	70-95	45-85	25-35	NP-10
	35-65	Silt loam, loam, sandy loam	ML, SM	A-4	0	0	85-100	75-100	70-95	45-85	25-35	NP-10
KaA:												
Kanawha---------	0-10	Silt loam, loam, fine sandy loam	ML, CL, CL-ML	A-4	0	0	80-100	75-100	65-100	40-80	20-35	2-10
	10-66	Silt loam, loam, clay loam	CL, CL-ML, ML	A-4, A-6	0	0	80-100	75-100	65-100	50-80	20-40	3-15
	66-72	Loam, fine sandy loam	CL, CL-ML, ML	A-4	0	0	80-100	75-100	65-95	30-50	20-35	2-10
KaB:												
Kanawha---------	0-10	Silt loam, loam, fine sandy loam	CL, ML, CL-ML	A-4	0	0	80-100	75-100	65-100	40-80	20-35	2-10
	10-66	Silt loam, loam, clay loam	ML, CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-100	50-80	20-40	3-15
	66-72	Loam, fine sandy loam	CL, CL-ML, ML	A-4	0	0	80-100	75-100	65-95	30-50	20-35	2-10
KfB:												
Kaymine---------	0-3	Channery loam, channery silt loam	GC	A-4, A-6	0	15-30	70-90	60-85	60-80	25-45	25-35	7-12
	3-65	Very channery silt loam, very channery loam	GC	A-4, A-6	0	20-60	70-90	60-85	60-80	40-60	25-35	7-12
Fiveblock-------	0-4	Channery loam, channery sandy loam	SM, SC-SM, GC-GM, GM	A-1, A-2	0	15-30	55-70	50-65	35-50	10-25	15-25	NP-7
	4-65	Very channery sandy loam, very channery loamy sand	SM, SC-SM, GC-GM, GM	A-2, A-1	0	15-30	55-70	50-65	35-50	10-25	15-25	NP-7
KfF:												
Kaymine---------	0-3	Channery loam, channery silt loam	GC	A-4, A-6	0	15-30	70-90	60-85	60-80	25-45	25-35	7-12
	3-65	Very channery silt loam, very channery loam	GC	A-6, A-4	0	20-60	70-90	60-85	60-80	40-60	25-35	7-12
Fiveblock-------	0-4	Channery loam, channery sandy loam	SM, SC-SM, GC-GM, GM	A-1, A-2	0	15-30	55-70	50-65	35-50	10-25	15-25	NP-7
	4-65	Very channery sandy loam, very channery loamy sand	SM, SC-SM, GC-GM, GM	A-1, A-2	0	15-30	55-70	50-65	35-50	10-25	15-25	NP-7

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
KmF:												
Kaymine---------	0-3	Channery loam, channery silt loam	GC	A-4, A-6	0	15-30	70-90	60-85	60-80	25-45	25-35	7-12
	3-65	Very channery silt loam, very channery loam	GC	A-4, A-6	0	20-60	70-90	60-85	60-80	40-60	25-35	7-12
Cedarcreek------	0-3	Very channery loam, very channery sandy loam, very channery silt loam	GC	A-2, A-4, A-6	0	25-45	45-60	40-55	30-50	20-40	25-35	8-12
	3-65	Very channery loam, very channery sandy loam, very channery silt loam	GC	A-4, A-2	0	30-60	45-60	40-55	30-50	20-40	25-35	8-12
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	34-38	Bedrock			---	---	---	---	---	---	---	---
LgC:												
Latham----------	0-7	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0-5	85-100	75-100	70-100	65-90	20-40	4-12
	7-29	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
	29-34	Channery silty clay, channery clay, channery clay loam, channery silty clay loam	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	55-85	30-55	10-30
	34-38	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LgC:												
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
LgD:												
Latham----------	0-7	Silt loam	ML, CL-ML, CL	A-6, A-4	0	0-5	85-100	75-100	70-100	65-90	20-40	4-12
	7-29	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
	29-34	Channery silty clay, channery clay, channery clay loam, channery silty clay loam	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	55-85	30-55	10-30
	34-38	Bedrock			---	---	---	---	---	---	---	---
Gilpin----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-9	Silt loam	CL-ML, CL	A-4, A-6	0	0	80-95	75-90	70-85	50-80	20-40	5-15
	9-28	Channery silty clay loam, channery clay loam, channery silt loam, channery loam	SC, CL	A-6	0	5-20	50-95	45-90	35-75	30-65	20-40	5-15
	28-32	Bedrock			---	---	---	---	---	---	---	---
LiD:												
Lily------------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-12	Sandy loam, fine sandy loam, loam	SM	A-2-4	0	0-5	90-100	85-100	55-80	25-50	0-20	NP-4
	12-32	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0-5	90-100	80-100	55-80	35-65	10-25	5-15
	32-38	Sandy loam, fine sandy loam, loam, sandy clay loam	SM, SC	A-2-4	0	0-5	90-95	80-95	55-75	20-45	0-20	NP-10
	38-42	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
LiE:												
Lily------------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-12	Sandy loam, fine sandy loam, loam	SM	A-2-4	0	0-5	90-100	85-100	55-80	25-50	0-20	NP-4
	12-32	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0-5	90-100	80-100	55-80	35-65	10-25	5-15
	32-38	Sandy loam, fine sandy loam, loam, sandy clay loam	SM, SC	A-2-4	0	0-5	90-95	80-95	55-75	20-45	0-20	NP-10
	38-42	Bedrock			---	---	---	---	---	---	---	---
Lo:												
Lobdell---------	0-6	Loam, silt loam	ML, CL-ML, CL	A-4	0	0	95-100	90-100	80-100	65-90	20-30	NP-8
	6-38	Loam, silt loam	ML, CL-ML, CL	A-4	0	0	90-100	80-100	70-95	55-85	20-30	NP-8
	38-65	Silt loam, sandy loam, loam	ML, CL-ML, CL	A-4	0	0	90-100	80-100	65-85	40-80	15-25	NP-10
MlE:												
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	34-38	Bedrock			---	---	---	---	---	---	---	---
Latham----------	0-7	Silt loam	ML, CL-ML, CL	A-6, A-4	0	0-5	85-100	75-100	70-100	65-90	20-40	4-12
	7-29	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
	29-34	Channery silty clay, channery clay, channery clay loam, channery silty clay loam	CL, CH	A-7, A-6	0	10-25	75-100	70-95	65-90	55-85	30-55	10-30
	34-38	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MPF:												
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	34-38	Bedrock			---	---	---	---	---	---	---	---
Pineville-------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-8	Channery loam, channery fine sandy loam, channery silt loam	ML, CL-ML, SM, SC-SM	A-2, A-4	0	0-10	60-80	55-75	50-70	20-55	25-35	4-10
	8-50	Channery sandy clay loam, channery clay loam, channery loam	CL, CL-ML, SC, SC-SM	A-2, A-6, A-4	0	0-10	55-80	50-70	45-65	10-55	25-40	6-15
	50-67	Channery sandy clay loam, channery clay loam, channery loam	CL, CL-ML, SC, SC-SM	A-6, A-4, A-2	0	0-10	55-80	50-70	45-65	10-55	25-40	6-15
Guyandotte------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-14	Channery loam	GC-GM, SC-SM	A-2, A-4, A-1	0	10-20	40-70	40-70	15-55	10-40	20-30	NP-8
	14-54	Very channery loam, very channery silt loam	GC-GM, GM	A-4, A-2, A-1	0	30-50	40-65	40-65	35-65	10-40	20-30	NP-8
	54-65	Extremely channery loam, extremely channery fine sandy loam	GC-GM, GM	A-4, A-2, A-1	0	50-70	40-65	40-65	30-55	5-36	20-30	NP-8

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Mr:												
Middlebury------	0-12	Loam, fine sandy loam	CL, ML, CL-ML	A-4	0	0	80-100	75-100	50-100	30-50	25-35	5-10
	12-43	Fine sandy loam, sandy loam, loam, silt loam	SM, SC-SM	A-2-4, A-4	0	0	75-100	70-100	50-95	20-36	15-25	2-6
	43-65	Gravelly loamy sand, gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM, SC-SM	A-2-4	0	15-25	60-90	50-90	35-90	5-20	0-15	NP-4
Ms:												
Moshannon-------	0-9	Silt loam, loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	20-35	3-15
	9-37	Loam, silt loam, silty clay loam	CL, ML, CL-ML	A-4	0	0	95-100	90-100	90-100	80-95	15-30	3-12
	37-65	Stratified loamy sand, stratified loam, stratified sandy loam, fine sandy loam	CL, ML, SC, CL-ML	A-4, A-6	0	0	80-100	70-100	55-100	35-80	15-25	3-12
Ne:												
Nelse-----------	0-18	Silt loam, loam, fine sandy loam, sandy loam	CL, CL-ML, ML	A-4	0	0-5	85-100	85-100	65-90	50-80	15-25	NP-10
	18-65	Stratified sandy loam, stratified loam, stratified fine sandy loam, stratified loamy sand, stratified loamy fine sand, stratified sand	SM, SC-SM	A-2-4, A-4	0	0-5	95-100	90-100	60-85	25-45	5-15	NP-5
Or:												
Orrville--------	0-6	Loam, silt loam	CL, ML, CL-ML	A-4	0	0	95-100	90-100	85-100	50-80	20-35	3-10
	6-36	Silt loam, silty clay loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	75-100	70-95	50-90	20-40	3-16
	36-65	Loam, silt loam, sandy loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	50-80	15-35	3-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
PvE:												
Pineville-------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-8	Channery loam, channery fine sandy loam, channery silt loam	ML, CL-ML, SM, SC-SM	A-2, A-4	0	0-10	60-80	55-75	50-70	20-55	25-35	4-10
	8-50	Channery sandy clay loam, channery clay loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6, A-2	0	0-10	55-80	50-70	45-65	10-55	25-40	6-15
	50-67	Channery sandy clay loam, channery clay loam, channery loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-10	55-80	50-70	45-65	10-55	25-40	6-15
RmF:												
Rayne-----------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-11	Silt loam, loam	CL, ML	A-4	0	0	85-100	80-100	70-85	60-80	20-35	3-15
	11-44	Channery silty clay loam, channery silt loam, channery loam	CL	A-6	0	0	60-95	55-85	40-85	30-70	20-40	3-15
	44-48	Very channery silt loam, very channery loam	CL, GM, GC	A-4, A-6	0	---	40-90	15-80	15-75	10-60	20-35	3-15
	48-52	Bedrock			---	---	---	---	---	---	---	---
Matewan---------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-6	Sandy loam, loam, fine sandy loam	SM, SC	A-2-4	0	0-5	80-90	75-85	70-80	20-50	10-30	NP-10
	6-26	Channery sandy loam, channery fine sandy loam, channery loam	SM, SC	A-2-4	0	15-30	50-90	40-80	40-75	10-30	15-30	NP-10
	26-34	Extremely channery sandy loam, extremely channery loamy sand, extremely channery loam, very channery sandy loam	SC-SM, GC-GM	A-2-4, A-1	0	30-60	45-90	40-80	20-65	0-20	15-30	NP-10
	34-38	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
Sc:												
Senecaville-----	0-6	Silt loam, loam	ML, CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	60-90	20-35	3-12
	6-30	Silt loam, silty clay loam	CL, ML, CL-ML	A-4, A-6	0	0	90-100	90-100	85-100	70-95	25-40	3-18
	30-65	Silt loam, fine sandy loam, loam	CL, ML, CL-ML	A-4, A-6	0	0	90-100	90-100	85-100	70-95	25-40	3-18
SeA:												
Sensabaugh------	0-15	Loam, fine sandy loam, silt loam	ML, CL-ML, CL	A-4	0	0-5	90-100	75-95	65-85	55-75	15-30	NP-10
	15-30	Gravelly loam, gravelly silt loam	CL-ML, CL	A-4, A-6	0	0-5	70-95	55-90	45-75	35-65	20-35	5-15
	30-65	Very gravelly loam, very gravelly fine sandy loam, very gravelly sandy loam	SC-SM, SC, GC-GM, GC	A-4	0	0-10	55-90	25-75	25-65	20-55	20-35	5-15
SfB:												
Sensabaugh------	0-15	Loam, fine sandy loam, silt loam	ML, CL-ML, CL	A-4	0	0-5	90-100	75-95	65-85	55-75	15-30	NP-10
	15-30	Gravelly loam, gravelly silt loam	CL-ML, CL	A-4, A-6	0	0-5	70-95	55-90	45-75	35-65	20-35	5-15
	30-65	Very gravelly loam, very gravelly fine sandy loam, very gravelly sandy loam	SC-SM, SC, GC-GM, GC	A-4	0	0-10	55-90	25-75	25-65	20-55	20-35	5-15
ShF:												
Sharpcrest------	0-2	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	2-3	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-16	Coarse sandy loam, fine sandy loam	ML, CL-ML	A-4	0	0-5	80-95	75-95	70-80	55-70	16-25	2-10
	16-38	Channery sandy loam	SM, SC-SM, SC	A-2-4, A-4	0	0-10	50-95	50-90	40-85	25-50	16-30	2-10
	38-48	Very channery coarse sandy loam, very channery loamy sand, channery loamy sand, channery loam, very channery loam	SC, SM, SC-SM, GC-GM	A-1, A-2-4, A-4	0	5-20	40-80	35-75	25-65	25-40	16-30	2-10
	>48	Bedrock			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ShF:												
Hazleton--------	0-4	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-5	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	5-9	Sandy loam, loam, fine sandy loam	ML	A-4	0	0-5	90-100	90-100	75-90	60-70	0-20	NP-10
	9-45	Channery sandy loam, channery loam, channery loamy sand	GM, SM, ML, SC	A-2, A-4	0	10-20	60-85	60-80	60-75	20-55	15-25	NP-10
	45-50	Extremely channery sandy loam, extremely channery fine sandy loam, extremely channery loamy sand	GM, SM	A-1, A-2, A-4	0	40-60	55-80	35-75	25-65	15-50	15-25	NP-6
	50-54	Bedrock			---	---	---	---	---	---	---	---
SkC:												
Shelocta--------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Silt loam	ML, CL-ML	A-4	0	0	80-95	80-95	60-95	55-90	15-35	NP-10
	7-65	Channery silty clay loam, silt loam	GC, SC, CL-ML, CL	A-6, A-4	0	0-10	55-95	50-95	45-95	40-90	25-40	5-15
Beech-----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-7	Loam, silt loam	ML, CL-ML	A-4, A-6	0	0-15	65-95	60-90	55-85	35-80	20-35	2-11
	7-52	Channery clay loam, channery loam	ML, CL, SC, GM	A-6, A-4	0	10-25	45-90	40-85	35-80	30-65	25-40	7-14
	52-65	Extremely channery loam, extremely channery clay loam, extremely channery silt loam, very channery loam	ML, CL, SC	A-4, A-2, A-6	0	20-60	40-75	40-75	35-70	15-50	25-35	3-14
SlD:												
Shelocta--------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Silt loam	ML, CL-ML	A-4	0	0	80-95	80-95	60-95	55-90	15-35	NP-10
	7-65	Channery silty clay loam, silt loam	SC, CL-ML, CL, GC	A-6, A-4	0	0-10	55-95	50-95	45-95	40-90	25-40	5-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
SlD:												
Beech-----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-7	Loam, silt loam	ML, CL-ML	A-4, A-6	0	0-15	65-95	60-90	55-85	35-80	20-35	2-11
	7-52	Channery clay loam, channery loam	ML, CL, SC, GM	A-6, A-4	0	10-25	45-90	40-85	35-80	30-65	25-40	7-14
	52-65	Extremely channery loam, extremely channery clay loam, extremely channery silt loam, very channery loam	ML, CL, SC	A-4, A-2, A-6	0	20-60	40-75	40-75	35-70	15-50	25-35	3-14
SlE:												
Shelocta--------	0-3	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Silt loam	ML, CL-ML	A-4	0	0	80-95	80-95	60-95	55-90	15-35	NP-10
	7-65	Channery silty clay loam, silt loam	CL, CL-ML, SC, GC	A-6, A-4	0	0-10	55-95	50-95	45-95	40-90	25-40	5-15
Beech-----------	0-1	Slightly decomposed plant material	PT	A-8	---	---	---	---	---	---	---	---
	1-7	Loam, silt loam	ML, CL-ML	A-4, A-6	0	0-15	65-95	60-90	55-85	35-80	20-35	2-11
	7-52	Channery clay loam, channery loam	ML, CL, SC, GM	A-6, A-4	0	10-25	45-90	40-85	35-80	30-65	25-40	7-14
	52-65	Extremely channery loam, extremely channery clay loam, extremely channery silt loam, very channery loam	ML, CL, SC	A-4, A-2, A-6	0	20-60	40-75	40-75	35-70	15-50	25-35	3-14
Sm:												
Skidmore--------	0-10	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM, ML, GM, GC-GM	A-2-4	0	0-10	60-90	40-85	40-75	25-60	10-30	NP-7
	10-30	Very gravelly sandy loam, very gravelly fine sandy loam, very gravelly loam	GM	A-2-4, A-1	0	5-30	60-90	40-85	40-75	25-60	10-30	NP-5
	30-65	Extremely cobbly loamy sand, extremely cobbly fine sandy loam, extremely cobbly sandy loam	GM, GW-GM	A-2-4, A-1	0	40-60	30-70	30-50	15-40	10-35	5-15	NP-5

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ud:												
Udorthents------	---	---	---	---	---	---	---	---	---	---	---	---
UkB:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Kanawha---------	0-10	Silt loam, loam, fine sandy loam	CL-ML, ML, CL	A-4	0	0	80-100	75-100	65-100	40-80	20-35	2-10
	10-66	Silt loam, loam, clay loam	ML, CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-100	50-80	20-40	3-15
	66-72	Loam, fine sandy loam	ML, CL-ML, CL	A-4	0	0	80-100	75-100	65-95	30-50	20-35	2-10
UuB:												
Udorthents------	---	---	---	---	---	---	---	---	---	---	---	---
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Uw:												
Udorthents------	---	---	---	---	---	---	---	---	---	---	---	---
VaC:												
Vandalia--------	0-7	Silt loam	CL, ML	A-4, A-6	0	0-5	80-100	75-100	70-95	50-90	25-45	3-20
	7-65	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
VnD:												
Vandalia--------	0-7	Silt loam	CL, ML	A-4, A-6	0	0-5	80-100	75-100	70-95	50-90	25-45	3-20
	7-65	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
VnE:												
Vandalia--------	0-7	Silt loam	CL, ML	A-4, A-6	0	0-5	80-100	75-100	70-95	50-90	25-45	3-20
	7-65	Channery silty clay, channery silty clay loam, channery clay loam, channery clay	CL, CH	A-6, A-7	0	10-25	75-100	70-95	65-90	60-85	35-55	15-30
Yg:												
Yeager----------	0-1	Slightly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	1-5	Fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0-15	95-100	95-100	60-90	20-45	0-25	NP-5
	5-27	Stratified fine sandy loam	SM, SP-SM	A-3, A-2-4	0	0-30	95-100	75-100	55-80	5-35	0-20	NP
	27-65	Stratified sand	SM, SP-SM	A-2-4, A-3	0	0-30	95-100	75-100	55-80	5-35	0-20	NP

Table 18.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
AgB:														
Allegheny------------	0-8	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.22	0.0-2.9	1.0-4.0	.32	.32	4	8	0
	8-36	---	---	18-35	1.20-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28			
	36-50	---	---	10-25	1.20-1.50	4.00-14.00	0.08-0.17	0.0-2.9	0.0-0.5	.28	.28			
	50-54	---	---	---	---	0.00-1.00	---	---	---	---	---			
AgC:														
Allegheny------------	0-8	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.22	0.0-2.9	1.0-4.0	.32	.32	4	8	0
	8-36	---	---	18-35	1.20-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28			
	36-50	---	---	10-25	1.20-1.50	4.00-14.00	0.08-0.17	0.0-2.9	0.0-0.5	.28	.28			
	50-54	---	---	---	---	0.00-1.00	---	---	---	---	---			
BeD:														
Beech----------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-7	---	---	7-27	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.32	.43			
	7-52	---	---	25-40	1.30-1.60	1.40-4.20	0.10-0.16	3.0-6.0	0.0-0.5	.24	.28			
	52-65	---	---	7-27	1.30-1.60	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.20	.28			
BeE:														
Beech----------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-7	---	---	7-27	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.32	.43			
	7-52	---	---	25-40	1.30-1.60	1.40-4.20	0.10-0.16	3.0-6.0	0.0-0.5	.24	.28			
	52-65	---	---	7-27	1.30-1.60	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.20	.28			
BSF:														
Berks----------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-5	20-40	40-60	7-27	1.20-1.50	4.00-42.00	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32			
	5-22	20-40	45-65	7-27	1.20-1.60	4.00-42.00	0.04-0.10	0.0-2.9	0.1-0.5	.17	.24			
	22-28	20-40	45-65	7-27	1.20-1.60	14.00-42.00	0.04-0.10	0.0-2.9	0.1-0.5	.17	.24			
	28-38	---	---	---	---	0.00-1.40	---	---	---	---	---			
Shelocta-------------	0-.5	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---	4	8	0
	.5-4	20-52	28-65	7-27	1.15-1.30	4.00-14.00	0.12-0.22	0.0-2.9	10-20	.28	.37			
	4-58	10-30	28-60	0-40	1.30-1.55	4.00-14.00	0.10-0.20	0.0-2.9	0.1-1.2	.28	.32			
	58-80	---	---	0-40	1.30-1.55	4.00-14.00	0.10-0.20	---	0.1-1.2	---	---			
CeF:														
Cedarcreek-----------	0-3	---	---	7-27	1.35-1.65	4.00-14.00	0.07-0.16	0.0-2.9	0.0-1.0	.28	.43	5	8	0
	3-65	---	---	7-27	1.35-1.65	4.00-28.00	0.07-0.16	0.0-2.9	0.0-0.1	.32	.43			
Rock outcrop---------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
Ch:														
Chagrin--------------	0-12	---	28-50	15-27	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	8	0
	13-56	---	45-60	15-27	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	0.2-0.6	.32	.32			
	56-65	---	45-60	12-27	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	0.1-0.2	.32	.32			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
CoA:														
Cotaco---------------	0-12	---	---	7-27	1.20-1.40	4.00-42.00	0.12-0.20	0.0-2.9	2.0-4.0	.37	.43	3	8	0
	12-39	---	---	25-40	1.20-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.6	.28	.32			
	39-65	---	---	7-27	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.1-0.3	.28	.32			
CoB:														
Cotaco---------------	0-12	---	---	7-27	1.20-1.40	4.00-42.00	0.12-0.20	0.0-2.9	2.0-4.0	.37	.43	3	8	0
	12-39	---	---	25-40	1.20-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.6	.28	.32			
	39-65	---	---	7-27	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.1-0.3	.28	.32			
CuB:														
Cotaco---------------	0-12	---	---	7-27	1.20-1.40	4.00-42.00	0.12-0.20	0.0-2.9	2.0-4.0	.37	.43	3	8	0
	12-39	---	---	25-40	1.20-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.6	.28	.32			
	39-65	---	---	7-27	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.1-0.3	.28	.32			
Urban land-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
CuC:														
Cotaco---------------	0-12	---	---	7-27	1.20-1.40	4.00-42.00	0.12-0.20	0.0-2.9	2.0-4.0	.37	.43	3	8	0
	12-39	---	---	25-40	1.20-1.50	4.00-14.00	0.12-0.16	0.0-2.9	0.2-0.6	.28	.32			
	39-65	---	---	7-27	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.1-0.3	.28	.32			
Urban land-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
DlD:														
Dormont--------------	0-11	---	---	12-27	1.20-1.40	4.00-14.00	0.16-0.20	0.0-2.9	2.0-4.0	.43	.43	3	8	0
	11-40	---	---	25-40	1.40-1.60	1.40-4.20	0.14-0.18	3.0-6.0	0.1-0.5	.32	.32			
	40-54	---	---	25-40	1.40-1.60	1.40-4.00	0.08-0.12	3.0-6.0	0.1-0.3	.17	.20			
	54-58	---	---	---	---	0.42-14.00	---	---	---	---	---			
Latham---------------	0-7	---	---	20-27	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	2.0-3.0	.43	.49	3	8	0
	7-29	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
	29-34	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.4	.32	.43			
	34-38	---	---	---	---	0.00-0.15	---	---	0.0-0.0	---	---			
DlE:														
Dormont--------------	0-11	---	---	12-27	1.20-1.40	4.00-14.00	0.16-0.20	0.0-2.9	2.0-4.0	.43	.43	3	8	0
	11-40	---	---	25-40	1.40-1.60	1.40-4.20	0.14-0.18	3.0-6.0	0.1-0.5	.32	.32			
	40-54	---	---	25-40	1.40-1.60	1.40-4.00	0.08-0.12	3.0-6.0	0.1-0.3	.17	.20			
	54-58	---	---	---	---	0.42-14.00	---	---	---	---	---			
Latham---------------	0-7	---	---	20-27	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	2.0-3.0	.43	.49	3	8	0
	7-29	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
	29-34	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.4	.32	.43			
	34-38	---	---	---	---	0.00-0.15	---	---	0.0-0.0	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
GiD:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-33	---	---	---	---	1.40-4.00	---	---	---	---	---			
	>33	---	---	---	---	---	---	---	---	---	---			
GiE:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
GlF:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
GmE:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-33	---	---	---	---	1.40-4.00	---	---	---	---	---			
	>33	---	---	---	---	---	---	---	---	---	---			
Matewan--------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
GpC:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
GpC:														
Upshur---------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	1-8	---	50-60	15-27	1.20-1.40	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0	.37	.43			
	8-41	---	35-45	40-60	1.30-1.60	4.00-14.00	0.10-0.14	6.0-9.0	0.3-1.2	.32	.43			
	41-47	---	35-45	40-60	1.30-1.60	0.40-1.40	0.10-0.14	6.0-9.0	0.2-0.4	.28	.43			
	47-51	---	---	---	---	0.10-0.30	---	---	---	---	---			
GpD:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
Upshur---------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	1-8	---	50-60	15-27	1.20-1.40	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0	.37	.43			
	8-41	---	35-45	40-60	1.30-1.60	4.00-14.00	0.10-0.14	6.0-9.0	0.3-1.2	.32	.43			
	41-47	---	35-45	40-60	1.30-1.60	0.40-1.40	0.10-0.14	6.0-9.0	0.2-0.4	.28	.43			
	47-51	---	---	---	---	0.10-0.30	---	---	---	---	---			
GpE:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
Upshur---------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	1-8	---	50-60	15-27	1.20-1.40	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0	.37	.43			
	8-41	---	35-45	40-60	1.30-1.60	4.00-14.00	0.10-0.14	6.0-9.0	0.3-1.2	.32	.43			
	41-47	---	35-45	40-60	1.30-1.60	0.40-1.40	0.10-0.14	6.0-9.0	0.2-0.4	.28	.43			
	47-51	---	---	---	---	0.10-0.30	---	---	---	---	---			
GpF:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
Upshur---------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	1-8	---	50-60	15-27	1.20-1.40	4.00-14.00	0.12-0.16	3.0-6.0	2.0-4.0	.37	.43			
	8-41	---	35-45	40-60	1.30-1.60	4.00-14.00	0.10-0.14	6.0-9.0	0.3-1.2	.32	.43			
	41-47	---	35-45	40-60	1.30-1.60	0.40-1.40	0.10-0.14	6.0-9.0	0.2-0.4	.28	.43			
	47-51	---	---	---	---	0.10-0.30	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
GrE:														
Gilpin---------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
Wharton--------------	0-2	---	---	---	---	---	---	---	---	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-10	---	---	12-27	1.10-1.30	4.00-14.00	0.16-0.20	0.0-2.9	2.0-4.0	.37	.37			
	10-37	---	---	25-40	1.20-1.50	0.20-0.60	0.12-0.16	3.0-6.0	0.2-0.6	.24	.28			
	37-49	---	---	12-27	1.20-1.50	4.00-14.00	0.10-0.14	0.0-2.9	0.1-0.2	.37	.37			
	49-53	---	---	---	---	0.00-0.20	---	---	---	---	---			
Gs:														
Grigsby--------------	0-14	---	---	5-10	1.20-1.50	14.00-42.00	0.08-0.14	0.0-2.9	1.0-4.0	.20	.20	5	8	0
	14-45	---	---	5-10	1.20-1.50	14.00-42.00	0.08-0.14	0.0-2.9	0.2-1.0	.28	.28			
	45-65	---	---	2-8	1.20-1.50	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.37	.37			
Gt:														
Grigsby--------------	0-14	---	---	5-10	1.20-1.50	14.00-42.00	0.08-0.14	0.0-2.9	1.0-4.0	.20	.20	5	8	0
	14-45	---	---	5-10	1.20-1.50	14.00-42.00	0.08-0.14	0.0-2.9	0.2-1.0	.28	.28			
	45-65	---	---	2-8	1.20-1.50	14.00-42.00	0.03-0.08	0.0-2.9	0.0-0.5	.37	.37			
Gu:														
Guyan----------------	0-10	---	---	12-27	1.20-1.40	4.00-14.00	0.18-0.22	0.0-2.9	2.0-4.0	.32	.32	5	8	0
	10-50	---	---	25-40	1.25-1.55	4.00-14.00	0.14-0.20	0.0-2.9	0.3-0.5	.32	.32			
	50-65	---	---	25-40	1.25-1.55	4.00-14.00	0.14-0.20	0.0-2.9	0.1-0.5	.32	.32			
HMF:														
Highsplint-----------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-11	---	---	7-27	1.10-1.30	4.00-42.00	0.07-0.15	0.0-2.9	2.0-4.0	.15	.20			
	11-50	---	---	7-27	1.10-1.30	4.00-42.00	0.07-0.15	0.0-2.9	0.0-1.0	.05	.20			
	50-65	---	---	7-20	1.10-1.30	4.00-42.00	0.05-0.10	0.0-2.9	0.0-1.0	.05	.20			
Matewan--------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
Cloverlick-----------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-9	---	---	7-27	1.10-1.30	14.00-42.00	0.13-0.20	0.0-2.9	4.0-8.0	.28	.28			
	9-50	---	---	7-27	1.30-1.55	4.00-28.00	0.08-0.17	0.0-2.9	0.0-0.3	.17	.28			
	50-65	---	---	7-20	1.55-1.70	14.00-42.00	0.05-0.12	0.0-2.9	0.0-0.3	.17	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
HuE:														
Highsplint-----------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-11	---	---	7-27	1.10-1.30	4.00-42.00	0.07-0.15	0.0-2.9	2.0-4.0	.15	.20			
	11-50	---	---	7-27	1.10-1.30	4.00-42.00	0.07-0.15	0.0-2.9	0.0-1.0	.05	.20			
	50-65	---	---	7-20	1.10-1.30	4.00-42.00	0.05-0.10	0.0-2.9	0.0-1.0	.05	.20			
Urban land-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
Hy:														
Holly----------------	0-6	---	28-50	7-27	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.0	.28	.28	5	8	0
	6-35	---	45-70	12-27	1.20-1.50	4.00-14.00	0.20-0.24	0.0-2.9	0.3-0.5	.28	.32			
	35-65	---	45-70	12-27	1.20-1.50	4.00-14.00	0.20-0.24	0.0-2.9	0.3-0.5	.28	.37			
KaA:														
Kanawha--------------	0-10	---	---	10-20	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	2.0-4.0	.32	.32	4	8	0
	10-66	---	---	18-35	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	0.3-0.5	.32	.28			
	66-72	---	---	7-25	1.20-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.1-0.5	.28	.28			
KaB:														
Kanawha--------------	0-10	---	---	10-20	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	2.0-4.0	.32	.32	4	8	0
	10-66	---	---	18-35	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	0.3-0.5	.32	.28			
	66-72	---	---	7-25	1.20-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.1-0.5	.28	.28			
KfB:														
Kaymine--------------	0-3	---	---	7-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-1.0	.28	.43	5	8	0
	3-65	---	---	12-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-0.1	.32	.43			
Fiveblock------------	0-4	---	---	7-27	1.35-1.65	4.20-28.00	0.05-0.12	0.0-2.9	0.1-1.0	.32	.43	5	8	0
	4-65	---	---	7-20	1.35-1.65	4.20-28.00	0.05-0.12	0.0-2.9	0.0-0.1	.32	.43			
KfF:														
Kaymine--------------	0-3	---	---	7-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-1.0	.28	.43	5	8	0
	3-65	---	---	12-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-0.1	.32	.43			
Fiveblock------------	0-4	---	---	7-27	1.35-1.65	4.20-28.00	0.05-0.12	0.0-2.9	0.1-1.0	.32	.43	5	8	0
	4-65	---	---	7-20	1.35-1.65	4.20-28.00	0.05-0.12	0.0-2.9	0.0-0.1	.32	.43			
KmF:														
Kaymine--------------	0-3	---	---	7-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-1.0	.28	.43	5	8	0
	3-65	---	---	12-27	1.35-1.65	4.00-42.00	0.07-0.17	0.0-2.9	0.0-0.1	.32	.43			
Cedarcreek-----------	0-3	---	---	7-27	1.35-1.65	4.00-14.00	0.07-0.16	0.0-2.9	0.0-1.0	.28	.43	5	8	0
	3-65	---	---	7-27	1.35-1.65	4.00-28.00	0.07-0.16	0.0-2.9	0.0-0.1	.32	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
KmF:														
Matewan---------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
LgC:														
Latham----------------	0-7	---	---	20-27	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	2.0-3.0	.43	.49	3	8	0
	7-29	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
	29-34	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.4	.32	.43			
	34-38	---	---	---	---	0.00-0.15	---	---	0.0-0.0	---	---			
Gilpin----------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
LgD:														
Latham----------------	0-7	---	---	20-27	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	2.0-3.0	.43	.49	3	8	0
	7-29	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
	29-34	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.4	.32	.43			
	34-38	---	---	---	---	0.00-0.15	---	---	0.0-0.0	---	---			
Gilpin----------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-9	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.5-4.0	.32	.37			
	9-28	---	---	18-45	1.20-1.50	4.00-14.00	0.12-0.14	0.0-2.9	0.2-0.6	.24	.37			
	28-32	---	---	---	---	1.40-4.00	---	---	---	---	---			
LiD:														
Lily------------------	0-2	---	---	---	---	---	---	---	80-90	---	---	2	8	0
	2-12	---	---	5-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	0.2-1.0	.28	.28			
	12-32	---	---	25-40	1.20-1.40	14.00-42.00	0.09-0.18	0.0-2.9	0.2-0.9	.28	.32			
	32-38	---	---	5-20	1.25-1.35	14.00-42.00	0.09-0.16	0.0-2.9	0.2-0.3	.17	.24			
	38-42	---	---	---	---	0.00-1.40	---	---	---	---	---			
LiE:														
Lily------------------	0-2	---	---	---	---	---	---	---	80-90	---	---	2	8	0
	2-12	---	---	5-20	1.20-1.40	14.00-42.00	0.09-0.16	0.0-2.9	0.2-1.0	.28	.28			
	12-32	---	---	25-40	1.20-1.40	14.00-42.00	0.09-0.18	0.0-2.9	0.2-0.9	.28	.32			
	32-38	---	---	5-20	1.25-1.35	14.00-42.00	0.09-0.16	0.0-2.9	0.2-0.3	.17	.24			
	38-42	---	---	---	---	0.00-1.40	---	---	---	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Lo:														
Lobdell--------------	0-6	---	---	15-27	1.20-1.40	4.00-14.00	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5	8	0
	6-38	20-50	30-60	10-25	1.20-1.50	4.00-14.00	0.20-0.24	0.0-2.9	0.2-1.5	.37	.37			
	38-65	15-55	30-65	10-25	1.20-1.50	4.00-42.00	0.12-0.18	0.0-2.9	0.1-0.3	.37	.37			
MlE:														
Matewan--------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
Latham---------------	0-7	---	---	20-27	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	2.0-3.0	.43	.49	3	8	0
	7-29	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
	29-34	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.4	.32	.43			
	34-38	---	---	---	---	0.00-0.15	---	---	0.0-0.0	---	---			
MPF:														
Matewan--------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
Pineville------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	4	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-8	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.22	0.0-2.9	1.0-4.0	.20	.37			
	8-50	---	---	20-35	1.20-1.40	4.00-14.00	0.13-0.18	0.0-2.9	0.2-1.3	.15	.17			
	50-67	---	---	20-35	1.20-1.50	4.00-14.00	0.08-0.17	0.0-2.9	0.2-0.6	.15	.17			
Guyandotte-----------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-14	---	---	7-27	1.00-1.30	4.00-42.00	0.10-0.16	0.0-2.9	2.0-10	.10	.20			
	14-54	---	---	7-27	1.10-1.30	4.00-42.00	0.08-0.17	0.0-2.9	0.2-1.5	.10	.20			
	54-65	---	---	7-27	1.30-1.60	4.00-42.00	0.05-0.12	0.0-2.9	0.1-0.6	.10	.20			
Mr:														
Middlebury-----------	0-12	---	28-50	10-20	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	2.0-4.0	.32	.32	5	8	0
	12-43	---	---	10-20	1.20-1.50	4.00-14.00	0.10-0.20	0.0-2.9	0.5-1.5	.28	.28			
	43-65	---	---	2-10	1.20-1.50	14.00-280.00	0.01-0.10	0.0-2.9	0.0-0.5	.28	.32			
Ms:														
Moshannon------------	0-9	---	---	15-27	1.20-1.50	4.00-14.00	0.20-0.24	0.0-2.9	2.0-4.0	.37	.37	5	8	0
	9-37	20-50	30-60	7-30	1.20-1.50	4.00-14.00	0.18-0.22	0.0-2.9	0.2-1.5	.37	.37			
	37-65	50-90	5-30	5-15	1.20-1.50	4.00-14.00	0.14-0.18	0.0-2.9	0.1-0.3	.37	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Ne:														
Nelse----------------	0-18	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.22	0.0-2.9	4.0-8.0	.37	.37	5	8	0
	18-65	---	---	2-18	1.40-1.80	14.00-140.00	0.09-0.14	0.0-2.9	0.5-1.5	.15	.17			
Or:														
Orrville-------------	0-6	---	30-50	7-27	1.25-1.45	4.00-14.00	0.18-0.22	0.0-2.9	2.0-4.0	.37	.37	5	8	0
	6-36	---	28-80	12-27	1.30-1.50	4.00-14.00	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37			
	36-65	---	30-50	7-27	1.30-1.50	4.00-14.00	0.18-0.22	0.0-2.9	0.1-0.3	.37	.37			
PvE:														
Pineville------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	4	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-8	---	---	15-27	1.20-1.40	4.00-14.00	0.12-0.22	0.0-2.9	1.0-4.0	.20	.37			
	8-50	---	---	20-35	1.20-1.40	4.00-14.00	0.13-0.18	0.0-2.9	0.2-1.3	.15	.17			
	50-67	---	---	20-35	1.20-1.50	4.00-14.00	0.08-0.17	0.0-2.9	0.2-0.6	.15	.17			
RmF:														
Rayne----------------	0-2	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	3	8	0
	2-11	---	---	15-27	1.20-1.40	4.00-14.00	0.14-0.18	0.0-2.9	2.0-4.0	.28	.32			
	11-44	---	---	25-40	1.40-1.60	4.00-14.00	0.12-0.16	0.0-2.9	0.2-1.0	.20	.28			
	44-48	---	---	12-27	1.40-1.60	4.00-14.00	0.10-0.16	0.0-2.9	0.0-0.5	.20	.28			
	48-52	---	---	---	---	1.40-4.00	---	---	---	---	---			
Matewan--------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	2	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-6	---	---	7-20	1.20-1.50	42.00-141.00	0.08-0.12	0.0-2.9	2.0-4.0	.15	.20			
	6-26	---	---	7-20	1.20-1.50	42.00-141.00	0.06-0.12	0.0-2.9	0.1-2.0	.15	.20			
	26-34	---	---	7-20	1.20-1.50	42.00-141.00	0.05-0.10	0.0-2.9	0.0-1.0	.15	.20			
	34-38	---	---	---	---	0.07-42.00	---	---	---	---	---			
Sc:														
Senecaville----------	0-6	---	---	12-27	1.20-1.40	4.00-14.00	0.18-0.24	0.0-2.9	2.0-4.0	.32	.43	5	8	0
	6-30	---	---	12-27	1.20-1.40	1.40-14.00	0.12-0.18	3.0-6.0	0.2-0.8	.32	.43			
	30-65	---	---	12-27	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9	0.1-0.3	.32	.43			
SeA:														
Sensabaugh-----------	0-15	---	28-50	8-25	1.25-1.40	4.20-42.00	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	5	8	0
	15-30	---	28-50	8-25	1.25-1.40	5.00-42.00	0.10-0.16	0.0-2.9	0.5-0.7	.17	.24			
	30-65	---	28-50	7-20	1.20-1.50	11.00-42.00	0.08-0.14	0.0-2.9	0.1-0.2	.17	.20			
SfB:														
Sensabaugh-----------	0-15	---	28-50	8-25	1.25-1.40	4.20-42.00	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	5	8	0
	15-30	---	28-50	8-25	1.25-1.40	5.00-42.00	0.10-0.16	0.0-2.9	0.5-0.7	.17	.24			
	30-65	---	28-50	7-20	1.20-1.50	11.00-42.00	0.08-0.14	0.0-2.9	0.1-0.2	.17	.20			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
ShF:														
Sharpcrest-----------	0-2	---	---	---	---	---	---	---	---	---	---	3	8	0
	2-3	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	3-16	43-85	0-50	0-20	1.00-1.60	14.00-42.00	0.12-0.22	0.0-2.9	3.0-8.0	.24	.24			
	16-38	43-85	0-50	0-20	1.20-1.70	14.00-42.00	0.10-0.18	0.0-2.9	0.0-1.0	.15	.24			
	38-48	43-85	0-50	0-20	1.20-1.40	42.00-126.00	0.10-0.18	0.0-2.9	0.0-0.3	.10	.24			
	>48	---	---	---	---	4.11-42.00	---	---	---	---	---			
Hazleton-------------	0-4	---	---	---	---	---	---	---	---	---	---	5	8	0
	4-5	---	---	---	0.10-0.30	42.00-141.00	---	---	65-90	---	---			
	5-9	---	---	7-20	1.20-1.40	14.00-42.00	0.12-0.16	0.0-2.9	2.0-4.0	.15	.17			
	9-45	---	---	7-20	1.20-1.40	14.00-141.00	0.10-0.14	0.0-2.9	0.0-0.5	.15	.20			
	45-50	---	---	7-20	1.20-1.50	14.00-141.00	0.08-0.12	0.0-2.9	0.0-0.5	.15	.20			
	50-54	---	---	---	---	0.00-1.40	---	---	---	---	---			
SkC:														
Shelocta-------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	4	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-7	---	30-70	7-27	1.15-1.30	4.00-14.00	0.12-0.18	0.0-2.9	1.0-5.0	.28	.37			
	7-65	---	---	25-40	1.30-1.55	4.00-14.00	0.10-0.20	0.0-2.9	0.1-0.5	.20	.32			
Beech----------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-7	---	---	7-27	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.32	.43			
	7-52	---	---	25-40	1.30-1.60	1.40-4.20	0.10-0.16	3.0-6.0	0.0-0.5	.24	.28			
	52-65	---	---	7-27	1.30-1.60	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.20	.28			
SlD:														
Shelocta-------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	4	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-7	---	30-70	7-27	1.15-1.30	4.00-14.00	0.12-0.18	0.0-2.9	1.0-5.0	.28	.37			
	7-65	---	---	25-40	1.30-1.55	4.00-14.00	0.10-0.20	0.0-2.9	0.1-0.5	.20	.32			
Beech----------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-7	---	---	7-27	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.32	.43			
	7-52	---	---	25-40	1.30-1.60	1.40-4.20	0.10-0.16	3.0-6.0	0.0-0.5	.24	.28			
	52-65	---	---	7-27	1.30-1.60	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.20	.28			
SlE:														
Shelocta-------------	0-3	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	4	8	0
	3-4	---	---	---	0.10-0.30	42.00-141.00	---	---	60-80	---	---			
	4-7	---	30-70	7-27	1.15-1.30	4.00-14.00	0.12-0.18	0.0-2.9	1.0-5.0	.28	.37			
	7-65	---	---	25-40	1.30-1.55	4.00-14.00	0.10-0.20	0.0-2.9	0.1-0.5	.20	.32			
Beech----------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-7	---	---	7-27	1.20-1.40	4.00-14.00	0.14-0.20	0.0-2.9	1.0-4.0	.32	.43			
	7-52	---	---	25-40	1.30-1.60	1.40-4.20	0.10-0.16	3.0-6.0	0.0-0.5	.24	.28			
	52-65	---	---	7-27	1.30-1.60	4.00-14.00	0.08-0.13	0.0-2.9	0.0-0.5	.20	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Sm:														
Skidmore-------------	0-10	---	---	7-18	1.20-1.40	14.00-42.00	0.07-0.13	0.0-2.9	2.0-4.0	.17	.24	5	8	0
	10-30	---	---	7-18	1.30-1.60	14.00-42.00	0.04-0.10	0.0-2.9	0.5-2.0	.17	.24			
	30-65	---	---	7-18	1.30-1.60	14.00-42.00	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
Ud:														
Udorthents-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
UkB:														
Urban land-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
Kanawha--------------	0-10	---	---	10-20	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	2.0-4.0	.32	.32	4	8	0
	10-66	---	---	18-35	1.20-1.40	4.00-14.00	0.16-0.22	0.0-2.9	0.3-0.5	.32	.28			
	66-72	---	---	7-25	1.20-1.50	4.00-14.00	0.12-0.18	0.0-2.9	0.1-0.5	.28	.28			
UuB:														
Udorthents-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
Urban land-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
Uw:														
Udorthents-----------	---	---	---	---	---	---	---	---	---	---	---	--	8	0
VaC:														
Vandalia-------------	0-7	---	---	12-27	1.20-1.50	1.40-14.00	0.12-0.18	3.0-6.0	2.0-4.0	.37	.43	4	8	0
	7-65	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
VnD:														
Vandalia-------------	0-7	---	---	12-27	1.20-1.50	1.40-14.00	0.12-0.18	3.0-6.0	2.0-4.0	.37	.43	4	8	0
	7-65	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
VnE:														
Vandalia-------------	0-7	---	---	12-27	1.20-1.50	1.40-14.00	0.12-0.18	3.0-6.0	2.0-4.0	.37	.43	4	8	0
	7-65	---	---	35-60	1.30-1.60	0.06-0.20	0.08-0.12	6.0-9.0	0.2-0.6	.32	.43			
Yg:														
Yeager---------------	0-1	---	---	---	0.04-0.10	42.00-141.00	---	---	80-90	---	---	5	8	0
	1-5	---	---	3-12	1.40-1.60	14.00-141.00	0.08-0.14	0.0-2.9	2.0-4.0	.17	.17			
	5-27	---	---	2-10	1.40-1.70	14.00-141.00	0.05-0.10	0.0-2.9	1.0-3.0	.15	.15			
	27-65	---	---	2-10	1.40-1.70	14.00-141.00	0.05-0.10	0.0-2.9	0.2-1.0	.15	.15			

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
AgB:				
Allegheny------------	0-8	10-20	3.8-8.4	3.6-6.0
	8-36	10-15	3.6-7.4	3.6-6.0
	36-50	10-20	2.0-7.4	3.6-5.5
	50-54	---	---	---
AgC:				
Allegheny------------	0-8	10-20	3.8-8.4	3.6-6.0
	8-36	10-15	3.6-7.4	3.6-6.0
	36-50	10-20	2.0-7.4	3.6-5.5
	50-54	---	---	---
BeD:				
Beech----------------	0-1	60-125	60-94	---
	1-7	15-25	1.2-1.4	4.5-6.0
	7-52	15-25	1.3-1.6	4.5-6.0
	52-65	15-30	1.3-1.6	4.5-6.0
BeE:				
Beech----------------	0-1	60-125	60-94	---
	1-7	15-25	1.2-1.4	4.5-6.0
	7-52	15-25	1.3-1.6	4.5-6.0
	52-65	15-30	1.3-1.6	4.5-6.0
BSF:				
Berks----------------	0-2	60-125	60-94	3.6-5.5
	2-5	10-33	8.0-25	3.6-5.5
	5-22	1.0-9.0	1.0-10	3.6-5.5
	22-28	1.0-6.0	1.0-6.0	3.6-5.5
	28-38	1.0-6.0	1.0-6.0	---
Shelocta-------------	0-.5	60-125	60-94	3.6-5.5
	.5-4	15-41	7.3-19	3.5-5.5
	4-58	8.4-13	4.1-11	3.5-5.5
	58-80	---	0.0-19	3.5-5.5
CeF:				
Cedarcreek-----------	0-3	3.6-11	2.7-7.9	3.6-5.5
	3-65	6.3-9.7	4.7-7.3	3.6-5.5
Rock outcrop---------	---	---	---	---
Ch:				
Chagrin--------------	0-12	7.0-16	5.2-12	5.6-7.3
	13-56	6.8-12	5.1-8.9	5.6-7.3
	56-65	2.0-9.2	1.5-6.9	5.6-7.3
CoA:				
Cotaco---------------	0-12	3.0-18	2.0-14	3.6-7.3
	12-39	6.0-11	5.0-8.0	3.6-5.5
	39-65	6.0-11	5.0-8.0	3.6-5.5
CoB:				
Cotaco---------------	0-12	3.0-18	2.0-14	3.6-7.3
	12-39	6.0-11	5.0-8.0	3.6-5.5
	39-65	6.0-11	5.0-8.0	3.6-5.5
CuB:				
Cotaco---------------	0-12	3.0-18	2.0-14	3.6-7.3
	12-39	6.0-11	5.0-8.0	3.6-5.5
	39-65	6.0-11	5.0-8.0	3.6-5.5

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
CuB:				
Urban land	---	---	---	---
CuC:				
Cotaco	0-12	3.0-18	2.0-14	3.6-7.3
	12-39	6.0-11	5.0-8.0	3.6-5.5
	39-65	6.0-11	5.0-8.0	3.6-5.5
Urban land	---	---	---	---
DlD:				
Dormont	0-11	9.0-20	6.0-18	4.5-6.5
	11-40	3.0-11	3.0-7.0	5.1-7.8
	40-54	1.0-9.0	1.0-5.0	5.1-7.8
	54-58	---	---	---
Latham	0-7	10-20	7.0-15	3.6-7.3
	7-29	18-25	14-19	4.6-6.0
	29-34	18-25	14-19	4.6-6.0
	34-38	0.0-0.0	0.0-0.0	---
DlE:				
Dormont	0-11	9.0-20	6.0-18	4.5-6.5
	11-40	3.0-11	3.0-7.0	5.1-7.8
	40-54	1.0-9.0	1.0-5.0	5.1-7.8
	54-58	---	---	---
Latham	0-7	10-20	7.0-15	3.6-7.3
	7-29	18-25	14-19	4.6-6.0
	29-34	18-25	14-19	4.6-6.0
	34-38	0.0-0.0	0.0-0.0	---
GiD:				
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-33	---	---	---
	>33	---	---	---
GiE:				
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
GlF:				
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
GmE:				
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-33	---	---	---
	>33	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
GmE:				
Matewan--------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
GpC:				
Gilpin---------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
Upshur---------------	0-1	60-125	60-94	---
	1-8	7.5-18	5.6-14	4.5-6.5
	8-41	11-16	7.9-12	4.5-6.0
	41-47	7.1-12	5.3-9.2	5.1-8.4
	47-51	---	---	---
GpD:				
Gilpin---------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
Upshur---------------	0-1	60-125	60-94	---
	1-8	7.5-18	5.6-14	4.5-6.5
	8-41	11-16	7.9-12	4.5-6.0
	41-47	7.1-12	5.3-9.2	5.1-8.4
	47-51	---	---	---
GpE:				
Gilpin---------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
Upshur---------------	0-1	60-125	60-94	---
	1-8	7.5-18	5.6-14	4.5-6.5
	8-41	11-16	7.9-12	4.5-6.0
	41-47	7.1-12	5.3-9.2	5.1-8.4
	47-51	---	---	---
GpF:				
Gilpin---------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
Upshur---------------	0-1	60-125	60-94	---
	1-8	7.5-18	5.6-14	4.5-6.5
	8-41	11-16	7.9-12	4.5-6.0
	41-47	7.1-12	5.3-9.2	5.1-8.4
	47-51	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
GrE:				
Gilpin---------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
Wharton--------------	0-2	---	---	---
	2-3	60-125	60-94	---
	3-10	11-26	10-14	4.5-5.5
	10-37	9.0-24	10-15	4.5-5.5
	37-49	7.0-18	7.0-14	4.5-5.5
	49-53	---	---	---
Gs:				
Grigsby--------------	0-14	3.6-12	2.6-8.8	6.1-7.3
	14-45	1.5-3.0	1.0-2.5	6.1-7.3
	45-65	0.2-3.6	0.5-2.0	5.6-7.3
Gt:				
Grigsby--------------	0-14	3.6-12	2.6-8.8	6.1-7.3
	14-45	1.5-3.0	1.0-2.5	6.1-7.3
	45-65	0.2-3.6	0.5-2.0	5.6-7.3
Gu:				
Guyan----------------	0-10	5.0-9.0	1.0-5.0	4.5-6.5
	10-50	3.0-9.0	1.0-5.0	4.5-5.5
	50-65	2.0-7.0	1.0-5.0	4.5-5.5
HMF:				
Highsplint-----------	0-2	60-125	60-94	---
	2-11	15-30	8.0-14	4.5-6.0
	11-50	5.0-10	2.0-6.0	4.5-5.5
	50-65	5.0-10	3.0-7.0	4.5-5.5
Matewan--------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
Cloverlick-----------	0-2	60-125	60-94	3.6-5.5
	2-9	6.0-16	3.0-12	5.1-6.5
	9-50	4.0-10	2.0-10	4.5-6.0
	50-65	5.0-12	2.0-10	4.5-5.5
HuE:				
Highsplint-----------	0-2	60-125	60-94	---
	2-11	15-30	8.0-14	4.5-6.0
	11-50	5.0-10	2.0-6.0	4.5-5.5
	50-65	5.0-10	3.0-7.0	4.5-5.5
Urban land-----------	---	---	---	---
Hy:				
Holly----------------	0-6	5.0-9.0	4.0-9.0	5.6-7.3
	6-35	3.0-7.0	2.0-7.0	5.6-7.3
	35-65	3.0-7.0	2.0-7.0	5.6-7.8

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
KaA:				
Kanawha	0-10	5.0-9.0	1.0-5.0	5.1-6.0
	10-66	3.0-9.0	1.0-5.0	5.6-7.3
	66-72	2.0-7.0	1.0-5.0	5.6-7.3
KaB:				
Kanawha	0-10	5.0-9.0	1.0-5.0	5.1-6.0
	10-66	3.0-9.0	1.0-5.0	5.6-7.3
	66-72	2.0-7.0	1.0-5.0	5.6-7.3
KfB:				
Kaymine	0-3	3.6-11	2.7-7.9	5.6-8.4
	3-65	0.0-9.7	0.0-7.3	5.6-8.4
Fiveblock	0-4	1.1-6.1	0.8-4.6	5.6-7.8
	4-65	0.0-5.2	0.0-3.9	5.6-7.8
KfF:				
Kaymine	0-3	3.6-11	2.7-7.9	5.6-8.4
	3-65	0.0-9.7	0.0-7.3	5.6-8.4
Fiveblock	0-4	1.1-6.1	0.8-4.6	5.6-7.8
	4-65	0.0-5.2	0.0-3.9	5.6-7.8
KmF:				
Kaymine	0-3	3.6-11	2.7-7.9	5.6-8.4
	3-65	0.0-9.7	0.0-7.3	5.6-8.4
Cedarcreek	0-3	3.6-11	2.7-7.9	3.6-5.5
	3-65	6.3-9.7	4.7-7.3	3.6-5.5
Matewan	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
LgC:				
Latham	0-7	10-20	7.0-15	3.6-7.3
	7-29	18-25	14-19	4.6-6.0
	29-34	18-25	14-19	4.6-6.0
	34-38	0.0-0.0	0.0-0.0	---
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---
LgD:				
Latham	0-7	10-20	7.0-15	3.6-7.3
	7-29	18-25	14-19	4.6-6.0
	29-34	18-25	14-19	4.6-6.0
	34-38	0.0-0.0	0.0-0.0	---
Gilpin	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-9	1.1-16	0.8-12	3.6-5.5
	9-28	5.0-11	3.7-8.5	3.6-5.5
	28-32	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
LiD:				
Lily-----------------	0-2	60-125	60-94	---
	2-12	2.9-16	2.2-12	3.6-5.5
	12-32	5.1-12	3.8-9.1	3.6-5.5
	32-38	5.4-9.3	4.0-7.0	3.6-5.5
	38-42	---	---	---
LiE:				
Lily-----------------	0-2	60-125	60-94	---
	2-12	2.9-16	2.2-12	3.6-5.5
	12-32	5.1-12	3.8-9.1	3.6-5.5
	32-38	5.4-9.3	4.0-7.0	3.6-5.5
	38-42	---	---	---
Lo:				
Lobdell--------------	0-6	7.5-16	5.6-12	5.1-7.3
	6-38	0.5-13	0.3-9.6	5.1-7.3
	38-65	5.5-11	4.1-8.4	5.6-7.3
MlE:				
Matewan--------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
Latham---------------	0-7	10-20	7.0-15	3.6-7.3
	7-29	18-25	14-19	4.6-6.0
	29-34	18-25	14-19	4.6-6.0
	34-38	0.0-0.0	0.0-0.0	---
MPF:				
Matewan--------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
Pineville------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-8	6.4-20	4.8-15	3.6-5.5
	8-50	6.6-14	5.0-10	3.6-5.5
	50-67	5.7-12	4.3-8.9	3.6-5.5
Guyandotte-----------	0-1	60-125	60-94	---
	1-14	4.5-32	3.4-24	5.1-6.5
	14-54	2.2-13	1.7-9.6	4.5-6.0
	54-65	2.0-6.0	0.9-6.5	4.5-5.5
Mr:				
Middlebury-----------	0-12	9.1-18	6.8-13	5.6-6.5
	12-43	8.6-17	6.4-13	5.6-7.3
	43-65	1.8-8.6	1.3-6.5	5.6-7.3
Ms:				
Moshannon------------	0-9	10-20	7.0-15	5.6-7.3
	9-37	10-19	7.0-15	5.6-6.5
	37-65	6.0-17	5.0-13	5.6-7.3

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
Ne:				
Nelse----------------	0-18	8.2-15	6.2-11	5.1-8.4
	18-65	1.1-9.7	0.8-7.3	5.1-8.4
Or:				
Orrville-------------	0-6	10-20	7.0-15	5.1-6.5
	6-36	10-16	7.0-15	5.1-7.3
	36-65	5.0-12	5.0-13	5.1-7.3
PvE:				
Pineville------------	0-2	60-125	60-94	---
	2-3	60-125	60-94	---
	3-8	6.4-20	4.8-15	3.6-5.5
	8-50	6.6-14	5.0-10	3.6-5.5
	50-67	5.7-12	4.3-8.9	3.6-5.5
RmF:				
Rayne----------------	0-2	60-125	60-94	---
	2-11	10-24	4.0-10	4.5-5.5
	11-44	8.0-20	3.0-8.0	4.5-5.5
	44-48	6.0-15	3.0-7.0	4.5-5.5
	48-52	---	---	---
Matewan--------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-6	7.0-18	5.2-14	4.5-6.0
	6-26	2.0-9.0	1.5-6.8	4.5-6.0
	26-34	1.3-6.0	1.0-4.5	4.5-6.0
	34-38	---	---	---
Sc:				
Senecaville----------	0-6	12-23	9.0-17	5.1-6.5
	6-30	10-22	7.0-16	5.1-6.5
	30-65	9.0-18	7.0-14	5.1-6.5
SeA:				
Sensabaugh-----------	0-15	5.0-15	4.0-11	5.6-7.8
	15-30	6.0-11	5.0-8.0	5.6-7.8
	30-65	4.0-12	3.0-9.0	5.6-7.8
SfB:				
Sensabaugh-----------	0-15	5.0-15	4.0-11	5.6-7.8
	15-30	6.0-11	5.0-8.0	5.6-7.8
	30-65	4.0-12	3.0-9.0	5.6-7.8
ShF:				
Sharpcrest-----------	0-2	---	---	---
	2-3	60-125	60-90	3.0-5.0
	3-16	2.0-6.0	8.0-24	3.6-5.5
	16-38	1.0-3.0	1.3-5.2	3.6-5.5
	38-48	1.0-3.0	1.0-5.4	3.6-5.5
	>48	---	---	---
Hazleton-------------	0-4	---	---	---
	4-5	60-125	60-94	---
	5-9	11-32	8.1-24	3.6-5.5
	9-45	1.8-6.9	1.3-5.2	3.6-5.5
	45-50	1.2-6.6	0.9-5.4	3.6-5.5
	50-54	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
SkC:				
Shelocta-------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-7	6.0-16	5.0-12	3.5-5.5
	7-65	5.0-10	4.0-7.0	3.5-5.5
Beech----------------	0-1	60-125	60-94	---
	1-7	15-25	1.2-1.4	4.5-6.0
	7-52	15-25	1.3-1.6	4.5-6.0
	52-65	15-30	1.3-1.6	4.5-6.0
SlD:				
Shelocta-------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-7	6.0-16	5.0-12	3.5-5.5
	7-65	5.0-10	4.0-7.0	3.5-5.5
Beech----------------	0-1	60-125	60-94	---
	1-7	15-25	1.2-1.4	4.5-6.0
	7-52	15-25	1.3-1.6	4.5-6.0
	52-65	15-30	1.3-1.6	4.5-6.0
SlE:				
Shelocta-------------	0-3	60-125	60-94	---
	3-4	60-125	60-94	---
	4-7	6.0-16	5.0-12	3.5-5.5
	7-65	5.0-10	4.0-7.0	3.5-5.5
Beech----------------	0-1	60-125	60-94	---
	1-7	15-25	1.2-1.4	4.5-6.0
	7-52	15-25	1.3-1.6	4.5-6.0
	52-65	15-30	1.3-1.6	4.5-6.0
Sm:				
Skidmore-------------	0-10	2.6-6.7	1.9-5.0	5.6-7.8
	10-30	3.6-6.5	2.7-4.9	5.6-7.8
	30-65	2.4-6.4	1.8-4.8	5.6-7.8
Ud:				
Udorthents-----------	---	---	---	---
UkB:				
Urban land-----------	---	---	---	---
Kanawha--------------	0-10	5.0-9.0	1.0-5.0	5.1-6.0
	10-66	3.0-9.0	1.0-5.0	5.6-7.3
	66-72	2.0-7.0	1.0-5.0	5.6-7.3
UuB:				
Udorthents-----------	---	---	---	---
Urban land-----------	---	---	---	---
Uw:				
Udorthents-----------	---	---	---	---
VaC:				
Vandalia-------------	0-7	12-24	9.0-18	4.6-6.0
	7-65	18-25	14-19	4.6-6.0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
VnD:				
Vandalia-------------	0-7	12-24	9.0-18	4.6-6.0
	7-65	18-25	14-19	4.6-6.0
VnE:				
Vandalia-------------	0-7	12-24	9.0-18	4.6-6.0
	7-65	18-25	14-19	4.6-6.0
Yg:				
Yeager---------------	0-1	60-125	60-94	---
	1-5	2.9-10	2.2-7.5	4.5-7.3
	5-27	1.3-7.7	1.0-5.8	4.5-7.3
	27-65	0.8-5.1	0.6-3.8	4.5-7.3

Table 20.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Flooding	
				Upper limit	Lower limit	Duration	Frequency
				Ft	Ft		
AgB:							
Allegheny	B	Very low					
			January	6.0-8.2	>6.0	---	None
			February	6.0-8.2	>6.0	---	None
			March	6.0-8.2	>6.0	---	None
			April	6.0-8.2	>6.0	---	None
			May	---	---	---	None
			June	---	---	---	None
			July	---	---	---	None
			August	---	---	---	None
			September	---	---	---	None
			October	---	---	---	None
			November	---	---	---	None
			December	6.0-8.2	>6.0	---	None
AgC:							
Allegheny	B	Low					
			January	6.0-8.2	>6.0	---	None
			February	6.0-8.2	>6.0	---	None
			March	6.0-8.2	>6.0	---	None
			April	6.0-8.2	>6.0	---	None
			May	---	---	---	None
			June	---	---	---	None
			July	---	---	---	None
			August	---	---	---	None
			September	---	---	---	None
			October	---	---	---	None
			November	---	---	---	None
			December	6.0-8.2	>6.0	---	None
BeD:							
Beech	C	Medium	Jan-Dec	1.5-3.0	>6.0	---	None
BeE:							
Beech	C	High	Jan-Dec	1.5-3.0	>6.0	---	None
BSF:							
Berks	C	Very high	Jan-Dec	---	---	---	None
Shelocta	B	High	Jan-Dec	---	---	---	None
CeF:							
Cedarcreek	C	Very high	Jan-Dec	---	---	---	None
Rock outcrop	D	Very high	Jan-Dec	---	---	---	None
Ch:							
Chagrin	B	Negligible					
			January	4.0-6.0	>6.0	Brief	Frequent
			February	4.0-6.0	>6.0	Brief	Frequent
			March	4.0-6.0	>6.0	Brief	Frequent
			April	4.0-6.0	>6.0	Brief	Frequent
			May	4.0-6.0	>6.0	Brief	Frequent
			June	---	---	Brief	Occasional
			July	---	---	Brief	Occasional
			August	---	---	Brief	Occasional
			September	---	---	Brief	Occasional
			October	---	---	Brief	Occasional
			November	---	---	Brief	Frequent
			December	4.0-6.0	>6.0	Brief	Frequent

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
CoA:							
Cotaco	C	Negligible					
			January	1.5-2.5	>6.0	---	None
			February	1.5-2.5	>6.0	---	None
			March	1.5-2.5	>6.0	---	None
			April	1.5-2.5	>6.0	---	None
			May	1.5-2.5	>6.0	---	None
			June	2.0-3.0	>6.0	---	None
			July	2.0-3.0	>6.0	---	None
			August	2.0-3.0	>6.0	---	None
			September	2.0-3.0	>6.0	---	None
			October	2.0-3.0	>6.0	---	None
			November	1.5-2.5	>6.0	---	None
			December	1.5-2.5	>6.0	---	None
CoB:							
Cotaco	C	Very low					
			January	1.5-2.5	>6.0	---	None
			February	1.5-2.5	>6.0	---	None
			March	1.5-2.5	>6.0	---	None
			April	1.5-2.5	>6.0	---	None
			May	1.5-2.5	>6.0	---	None
			June	2.0-3.0	>6.0	---	None
			July	2.0-3.0	>6.0	---	None
			August	2.0-3.0	>6.0	---	None
			September	2.0-3.0	>6.0	---	None
			October	2.0-3.0	>6.0	---	None
			November	1.5-2.5	>6.0	---	None
			December	1.5-2.5	>6.0	---	None
CuB:							
Cotaco	C	Very low					
			January	1.5-2.5	>6.0	---	None
			February	1.5-2.5	>6.0	---	None
			March	1.5-2.5	>6.0	---	None
			April	1.5-2.5	>6.0	---	None
			May	1.5-2.5	>6.0	---	None
			June	2.0-3.0	>6.0	---	None
			July	2.0-3.0	>6.0	---	None
			August	2.0-3.0	>6.0	---	None
			September	2.0-3.0	>6.0	---	None
			October	2.0-3.0	>6.0	---	None
			November	1.5-2.5	>6.0	---	None
			December	1.5-2.5	>6.0	---	None
Urban land	---	Very low	Jan-Dec	1.5-2.5	>6.0	Very brief	Very rare
CuC:							
Cotaco	C	Medium	January	1.5-2.5	>6.0	---	None
			February	1.5-2.5	>6.0	---	None
			March	1.5-2.5	>6.0	---	None
			April	1.5-2.5	>6.0	---	None
			May	1.5-2.5	>6.0	---	None
			June	2.0-3.0	>6.0	---	None
			July	2.0-3.0	>6.0	---	None
			August	2.0-3.0	>6.0	---	None
			September	2.0-3.0	>6.0	---	None
			October	2.0-3.0	>6.0	---	None
			November	1.5-2.5	>6.0	---	None
			December	1.5-2.5	>6.0	---	None
Urban land	---	Medium	Jan-Dec	1.5-2.5	>6.0	Very brief	Very rare

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
DlD:							
Dormont	C	Medium	Jan-Dec	1.5-3.0	>6.0	---	None
Latham	D	Medium	Jan-Dec	1.5-3.0	3.0-3.3	---	None
DlE:							
Dormont	C	High	Jan-Dec	1.5-3.0	>6.0	---	None
Latham	D	High	Jan-Dec	1.5-3.0	3.0-3.3	---	None
GiD:							
Gilpin	C	Medium	Jan-Dec	---	---	---	None
GiE:							
Gilpin	C	High	Jan-Dec	---	---	---	None
GlF:							
Gilpin	C	Very high	Jan-Dec	---	---	---	None
GmE:							
Gilpin	C	High	Jan-Dec	---	---	---	None
Matewan	C	High	Jan-Dec	---	---	---	None
GpC:							
Gilpin	C	Low	Jan-Dec	---	---	---	None
Upshur	D	Low	Jan-Dec	---	---	---	None
GpD:							
Gilpin	C	Medium	Jan-Dec	---	---	---	None
Upshur	D	Medium	Jan-Dec	---	---	---	None
GpE:							
Gilpin	C	High	Jan-Dec	---	---	---	None
Upshur	D	High	Jan-Dec	---	---	---	None
GpF:							
Gilpin	C	Very high	Jan-Dec	---	---	---	None
Upshur	D	Very high	Jan-Dec	---	---	---	None
GrE:							
Gilpin	C	High	Jan-Dec	---	---	---	None
Wharton	C	High	Jan-Dec	1.5-3.0	>6.0	---	None
Gs:							
Grigsby	B	Negligible					
			January	3.5-6.0	>6.0	Brief	Frequent
			February	3.5-6.0	>6.0	Brief	Frequent
			March	3.5-6.0	>6.0	Brief	Frequent
			April	3.5-6.0	>6.0	Brief	Frequent
			May	3.5-6.0	>6.0	Brief	Frequent
			June	3.5-6.0	>6.0	Brief	Occasional
			July	3.5-6.0	>6.0	Brief	Occasional
			August	3.5-6.0	>6.0	Brief	Occasional
			September	3.5-6.0	>6.0	Brief	Occasional
			October	3.5-6.0	>6.0	Brief	Occasional
			November	3.5-6.0	>6.0	Brief	Frequent
			December	3.5-6.0	>6.0	Brief	Frequent

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
Gt:							
Grigsby	B	Negligible					
			January	3.5-6.0	>6.0	Brief	Occasional
			February	3.5-6.0	>6.0	Brief	Occasional
			March	3.5-6.0	>6.0	Brief	Occasional
			April	3.5-6.0	>6.0	Brief	Occasional
			May	3.5-6.0	>6.0	Brief	Occasional
			June	3.5-6.0	>6.0	Very brief	Rare
			July	3.5-6.0	>6.0	Very brief	Rare
			August	3.5-6.0	>6.0	Very brief	Rare
			September	3.5-6.0	>6.0	Very brief	Rare
			October	3.5-6.0	>6.0	Very brief	Rare
			November	3.5-6.0	>6.0	Brief	Occasional
			December	3.5-6.0	>6.0	Brief	Occasional
Gu:							
Guyan	C	Negligible	Jan-Dec	0.5-1.5	>6.0	Very brief	Rare
HMF:							
Highsplint	B	Very high	Jan-Dec	---	---	---	None
Matewan	C	Very high	Jan-Dec	---	---	---	None
Cloverlick	B	Very high	Jan-Dec	---	---	---	None
HuE:							
Highsplint	B	High	Jan-Dec	---	---	---	None
Urban land	---	High	Jan-Dec	---	---	---	None
Hy:							
Holly	B/D	Negligible					
			January	0.0-1.0	>6.0	Brief	Occasional
			February	0.0-1.0	>6.0	Brief	Occasional
			March	0.0-1.0	>6.0	Brief	Occasional
			April	0.0-1.0	>6.0	Brief	Occasional
			May	0.0-1.0	>6.0	Brief	Occasional
			June	0.0-1.0	>6.0	Very brief	Rare
			July	0.0-1.0	>6.0	Very brief	Rare
			August	0.0-1.0	>6.0	Very brief	Rare
			September	0.0-1.0	>6.0	Very brief	Rare
			October	0.0-1.0	>6.0	Very brief	Rare
			November	0.0-1.0	>6.0	Brief	Occasional
			December	0.0-1.0	>6.0	Brief	Occasional
KaA:							
Kanawha	B	Negligible	Jan-Dec	---	---	---	None
KaB:							
Kanawha	B	Very low	Jan-Dec	---	---	---	None
KfB:							
Kaymine	C	Very low	Jan-Dec	---	---	---	None
Fiveblock	C	Very low	Jan-Dec	---	---	---	None
KfF:							
Kaymine	C	Very high	Jan-Dec	---	---	---	None
Fiveblock	C	Very high	Jan-Dec	---	---	---	None
KmF:							
Kaymine	C	Very high	Jan-Dec	---	---	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
KmF:							
Cedarcreek	C	Very high	Jan-Dec	---	---	---	None
Matewan	C	Very high	Jan-Dec	---	---	---	None
LgC:							
Latham	D	Low	Jan-Dec	1.5-3.0	3.0-3.3	---	None
Gilpin	C	Low	Jan-Dec	---	---	---	None
LgD:							
Latham	D	Medium	Jan-Dec	1.5-3.0	3.0-3.3	---	None
Gilpin	C	Medium	Jan-Dec	---	---	---	None
LiD:							
Lily	B	Medium	Jan-Dec	---	---	---	None
LiE:							
Lily	B	High	Jan-Dec	---	---	---	None
Lo:							
Lobdell	B	Negligible					
			January	2.0-3.5	>6.0	Brief	Occasional
			February	2.0-3.5	>6.0	Brief	Occasional
			March	2.0-3.5	>6.0	Brief	Occasional
			April	2.0-3.5	>6.0	Brief	Occasional
			May	2.0-3.5	>6.0	Brief	Occasional
			June	2.0-3.5	>6.0	Very brief	Rare
			July	2.0-3.5	>6.0	Very brief	Rare
			August	2.0-3.5	>6.0	Very brief	Rare
			September	2.0-3.5	>6.0	Very brief	Rare
			October	2.0-3.5	>6.0	Very brief	Rare
			November	2.0-3.5	>6.0	Brief	Occasional
			December	2.0-3.5	>6.0	Brief	Occasional
MlE:							
Matewan	C	High	Jan-Dec	---	---	---	None
Latham	D	High	Jan-Dec	1.5-3.0	3.0-3.3	---	None
MPF:							
Matewan	C	Very high	Jan-Dec	---	---	---	None
Pineville	B	Very high	Jan-Dec	---	---	---	None
Guyandotte	B	Very high	Jan-Dec	---	---	---	None
Mr:							
Middlebury	B	Negligible					
			January	1.5-3.0	>6.0	Brief	Frequent
			February	1.5-3.0	>6.0	Brief	Frequent
			March	1.5-3.0	>6.0	Brief	Frequent
			April	1.5-3.0	>6.0	Brief	Frequent
			May	1.5-3.0	>6.0	Brief	Frequent
			June	1.5-3.0	>6.0	Brief	Occasional
			July	1.5-3.0	>6.0	Brief	Occasional
			August	1.5-3.0	>6.0	Brief	Occasional
			September	1.5-3.0	>6.0	Brief	Occasional
			October	1.5-3.0	>6.0	Brief	Occasional
			November	1.5-3.0	>6.0	Brief	Frequent
			December	1.5-3.0	>6.0	Brief	Frequent

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
Ms:							
Moshannon	B	Negligible					
			January	4.0-6.0	>6.0	Brief	Occasional
			February	4.0-6.0	>6.0	Brief	Occasional
			March	4.0-6.0	>6.0	Brief	Occasional
			April	4.0-6.0	>6.0	Brief	Occasional
			May	4.0-6.0	>6.0	Brief	Occasional
			June	4.0-6.0	>6.0	Very brief	Rare
			July	4.0-6.0	>6.0	Very brief	Rare
			August	4.0-6.0	>6.0	Very brief	Rare
			September	4.0-6.0	>6.0	Very brief	Rare
			October	4.0-6.0	>6.0	Very brief	Rare
			November	4.0-6.0	>6.0	Brief	Occasional
			December	4.0-6.0	>6.0	Brief	Occasional
Ne:							
Nelse	B	Medium					
			January	4.0-6.0	>6.0	Very brief	Frequent
			February	4.0-6.0	>6.0	Very brief	Frequent
			March	4.0-6.0	>6.0	Very brief	Frequent
			April	4.0-6.0	>6.0	Very brief	Frequent
			May	4.0-6.0	>6.0	Very brief	Frequent
			June	4.0-6.0	>6.0	Very brief	Occasional
			July	4.0-6.0	>6.0	Very brief	Occasional
			August	4.0-6.0	>6.0	Very brief	Occasional
			September	4.0-6.0	>6.0	Very brief	Occasional
			October	4.0-6.0	>6.0	Very brief	Occasional
			November	4.0-6.0	>6.0	Very brief	Frequent
			December	4.0-6.0	>6.0	Very brief	Frequent
Or:							
Orrville	C	Negligible					
			January	1.0-2.0	>6.0	Brief	Occasional
			February	0.0-2.5	>6.0	Brief	Occasional
			March	0.0-2.5	>6.0	Brief	Occasional
			April	0.0-2.5	>6.0	Brief	Occasional
			May	0.0-2.5	>6.0	Brief	Occasional
			June	0.0-2.5	>6.0	Very brief	Rare
			July	0.0-2.5	>6.0	Very brief	Rare
			August	0.0-2.5	>6.0	Very brief	Rare
			September	0.0-2.5	>6.0	Very brief	Rare
			October	0.0-2.5	>6.0	Very brief	Rare
			November	0.0-2.5	>6.0	Brief	Occasional
			December	0.0-2.5	>6.0	Brief	Occasional
PvE:							
Pineville	B	High	Jan-Dec	---	---	---	None
RmF:							
Rayne	B	Very high	Jan-Dec	---	---	---	None
Matewan	C	Very high	Jan-Dec	---	---	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
Sc:							
Senecaville	B	Negligible					
			January	1.5-3.0	>6.0	Brief	Occasional
			February	1.5-3.0	>6.0	Brief	Occasional
			March	1.5-3.0	>6.0	Brief	Occasional
			April	1.5-3.0	>6.0	Brief	Occasional
			May	1.5-3.0	>6.0	Brief	Occasional
			June	1.5-3.0	>6.0	Very brief	Rare
			July	1.5-3.0	>6.0	Very brief	Rare
			August	1.5-3.0	>6.0	Very brief	Rare
			September	1.5-3.0	>6.0	Very brief	Rare
			October	1.5-3.0	>6.0	Very brief	Rare
			November	1.5-3.0	>6.0	Brief	Occasional
			December	1.5-3.0	>6.0	Brief	Occasional
SeA:							
Sensabaugh	B	Negligible					
			January	4.0-6.0	>6.0	Brief	Occasional
			February	4.0-6.0	>6.0	Brief	Occasional
			March	4.0-6.0	>6.0	Brief	Occasional
			April	4.0-6.0	>6.0	Brief	Occasional
			May	4.0-6.0	>6.0	Brief	Occasional
			June	4.0-6.0	>6.0	Very brief	Rare
			July	4.0-6.0	>6.0	Very brief	Rare
			August	4.0-6.0	>6.0	Very brief	Rare
			September	4.0-6.0	>6.0	Very brief	Rare
			October	4.0-6.0	>6.0	Very brief	Rare
			November	4.0-6.0	>6.0	Brief	Occasional
			December	4.0-6.0	>6.0	Brief	Occasional
SfB:							
Sensabaugh	B	Very low	Jan-Dec	---	---	Very brief	Rare
ShF:							
Sharpcrest	B	Very high	Jan-Dec	---	---	---	None
Hazleton	B	Very high	Jan-Dec	---	---	---	None
SkC:							
Shelocta	B	Low	Jan-Dec	---	---	---	None
Beech	C	Low	Jan-Dec	1.5-3.0	>6.0	---	None
SlD:							
Shelocta	B	Medium	Jan-Dec	---	---	---	None
Beech	C	Medium	Jan-Dec	1.5-3.0	>6.0	---	None
SlE:							
Shelocta	B	High	Jan-Dec	---	---	---	None
Beech	C	High	Jan-Dec	1.5-3.0	>6.0	---	None

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Flooding: Duration	Flooding: Frequency
				Ft	Ft		
Sm:							
Skidmore	B	Negligible					
			January	3.0-4.0	>6.0	Brief	Frequent
			February	3.0-4.0	>6.0	Brief	Frequent
			March	3.0-4.0	>6.0	Brief	Frequent
			April	3.0-4.0	>6.0	Brief	Frequent
			May	3.0-4.0	>6.0	Brief	Frequent
			June	3.0-4.0	>6.0	Brief	Occasional
			July	3.0-4.0	>6.0	Brief	Occasional
			August	3.0-4.0	>6.0	Brief	Occasional
			September	3.0-4.0	>6.0	Brief	Occasional
			October	3.0-4.0	>6.0	Brief	Occasional
			November	3.0-4.0	>6.0	Brief	Frequent
			December	3.0-4.0	>6.0	Brief	Frequent
Ud:							
Udorthents	---	High	Jan-Dec	---	---	---	None
UkB:							
Urban land	---	Very low	Jan-Dec	---	---	---	None
Kanawha	B	Very low	Jan-Dec	---	---	---	None
UuB:							
Udorthents	---	Very low	Jan-Dec	---	---	Very brief	Rare
Urban land	---	Very low	Jan-Dec	---	---	Very brief	Rare
Uw:							
Udorthents	---	Very high	Jan-Dec	---	---	---	None
VaC:							
Vandalia	D	Low	Jan-Dec	4.0-6.0	>6.0	---	None
VnD:							
Vandalia	D	Medium	Jan-Dec	4.0-6.0	>6.0	---	None
VnE:							
Vandalia	D	High	Jan-Dec	4.0-6.0	>6.0	---	None
Yg:							
Yeager	A	Very low					
			January	4.0-6.0	>6.0	Brief	Frequent
			February	4.0-6.0	>6.0	Brief	Frequent
			March	4.0-6.0	>6.0	Brief	Frequent
			April	4.0-6.0	>6.0	Brief	Frequent
			May	4.0-6.0	>6.0	Brief	Frequent
			June	4.0-6.0	>6.0	Brief	Occasional
			July	4.0-6.0	>6.0	Brief	Occasional
			August	4.0-6.0	>6.0	Brief	Occasional
			September	4.0-6.0	>6.0	Brief	Occasional
			October	4.0-6.0	>6.0	Brief	Occasional
			November	4.0-6.0	>6.0	Brief	Frequent
			December	4.0-6.0	>6.0	Brief	Frequent

Table 21.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
AgB:						
Allegheny-----------	Lithic bedrock	50-54	Strongly cemented	---	Low	High
AgC:						
Allegheny-----------	Lithic bedrock	50-54	Strongly cemented	---	Low	High
BeD:						
Beech---------------	---	---	---	Moderate	Moderate	Moderate
BeE:						
Beech---------------	---	---	---	Moderate	Moderate	Moderate
BSF:						
Berks---------------	Paralithic bedrock	28-32	Moderately cemented	Low	Low	High
Shelocta------------	Lithic bedrock	59-96	Strongly cemented	Moderate	Low	High
CeF:						
Cedarcreek----------	---	70-91	---	Moderate	Moderate	High
Rock outcrop--------	Lithic bedrock	---	---	---	---	---
Ch:						
Chagrin-------------	---	---	---	Moderate	Low	Moderate
CoA:						
Cotaco--------------	---	---	---	None	Moderate	High
CoB:						
Cotaco--------------	---	---	---	None	Moderate	High
CuB:						
Cotaco--------------	---	---	---	None	Moderate	High
Urban land----------	---	---	---	None	---	---
CuC:						
Cotaco--------------	---	---	---	None	Moderate	High
Urban land----------	---	---	---	None	---	---
DlD:						
Dormont-------------	Paralithic bedrock	54-58	Moderately cemented	Moderate	High	Moderate
Latham--------------	Paralithic bedrock	34-38	Moderately cemented	High	High	High
DlE:						
Dormont-------------	Paralithic bedrock	40-60	---	Moderate	High	Moderate
Latham--------------	Paralithic bedrock	20-40	---	High	High	High
GiD:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
GiE:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
GlF:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
GmE:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Matewan-------------	Lithic bedrock	34-38	Strongly cemented	Low	Low	High
GpC:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Upshur--------------	Paralithic bedrock	47-51	Moderately cemented	Moderate	High	Moderate
GpD:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Upshur--------------	Paralithic bedrock	40-60	---	Moderate	High	Moderate
GpE:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Upshur--------------	Paralithic bedrock	40-60	---	Moderate	High	Moderate
GpF:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Upshur--------------	Paralithic bedrock	40-60	---	Moderate	High	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
GrE:						
Gilpin--------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
Wharton-------------	Paralithic bedrock	49-53	Moderately cemented	High	High	High
Gs:						
Grigsby-------------	---	---	---	None	Low	Low
Gt:						
Grigsby-------------	---	---	---	None	Low	Low
Gu:						
Guyan---------------	---	---	---	High	High	Moderate
HMF:						
Highsplint----------	---	---	---	Moderate	Low	High
Matewan-------------	Lithic bedrock	34-38	Strongly cemented	Low	Low	High
Cloverlick----------	---	---	---	Moderate	Low	High
HuE:						
Highsplint----------	Lithic bedrock	63-79	---	Moderate	Low	High
Urban land----------	---	---	---	---	---	---
Hy:						
Holly---------------	---	---	---	High	High	Moderate
KaA:						
Kanawha-------------	---	---	---	Moderate	Low	Moderate
KaB:						
Kanawha-------------	---	---	---	Moderate	Low	Moderate
KfB:						
Kaymine-------------	---	---	---	Moderate	Low	Low
Fiveblock-----------	---	---	---	Moderate	Low	Low
KfF:						
Kaymine-------------	---	---	---	Moderate	Low	Low
Fiveblock-----------	---	---	---	Moderate	Low	Low
KmF:						
Kaymine-------------	---	70-99	---	Moderate	Low	Low
Cedarcreek----------	---	70-91	---	Moderate	Moderate	High
Matewan-------------	Lithic bedrock	34-38	Strongly cemented	Low	Low	High
LgC:						
Latham--------------	Paralithic bedrock	20-40	---	High	High	High

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
LgC:						
Gilpin----------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
LgD:						
Latham----------------	Paralithic bedrock	20-40	---	High	High	High
Gilpin----------------	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
	Lithic bedrock	28-40	Very strongly cemented			
LiD:						
Lily------------------	Lithic bedrock	38-42	Strongly cemented	---	Moderate	High
LiE:						
Lily------------------	Lithic bedrock	20-40	---	---	Moderate	High
Lo:						
Lobdell---------------	---	---	---	High	Low	Moderate
MlE:						
Matewan---------------	Lithic bedrock	20-40	---	Low	Low	High
Latham----------------	Paralithic bedrock	20-40	---	High	High	High
MPF:						
Matewan---------------	Lithic bedrock	20-40	---	Low	Low	High
Pineville-------------	---	---	---	Moderate	Low	High
Guyandotte------------	---	---	---	Low	Low	High
Mr:						
Middlebury------------	---	---	---	High	Moderate	Low
Ms:						
Moshannon-------------	---	---	---	High	Low	Moderate
Ne:						
Nelse-----------------	---	---	---	None	Low	Moderate
Or:						
Orrville--------------	---	---	---	High	High	Moderate
PvE:						
Pineville-------------	---	---	---	Moderate	Low	High
RmF:						
Rayne-----------------	Paralithic bedrock	48-52	Moderately cemented	Moderate	Low	High
Matewan---------------	Lithic bedrock	20-40	---	Low	Low	High
Sc:						
Senecaville-----------	---	---	---	High	Moderate	Moderate

Table 21.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
SeA:						
Sensabaugh----------	---	---	---	---	Low	Low
SfB:						
Sensabaugh----------	---	---	---	---	Low	Low
ShF:						
Sharpcrest----------	Lithic bedrock	40-60	---	Moderate	Low	High
Hazleton------------	Lithic bedrock	50-54	Strongly cemented	Moderate	Low	High
SkC:						
Shelocta------------	Lithic bedrock	40-80	---	Moderate	Low	High
Beech---------------	---	---	---	Moderate	Moderate	Moderate
SlD:						
Shelocta------------	Lithic bedrock	40-80	---	Moderate	Low	High
Beech---------------	---	---	---	Moderate	Moderate	Moderate
SlE:						
Shelocta------------	Lithic bedrock	40-80	---	Moderate	Low	High
Beech---------------	---	---	---	Moderate	Moderate	Moderate
Sm:						
Skidmore------------	Lithic bedrock	65-73	Strongly cemented	None	Low	Moderate
Ud:						
Udorthents----------	---	---	---	---	---	---
UkB:						
Urban land----------	---	---	---	---	---	---
Kanawha-------------	---	---	---	Moderate	Low	Moderate
UuB:						
Udorthents----------	---	---	---	---	---	---
Urban land----------	---	---	---	---	---	---
Uw:						
Udorthents----------	---	---	---	---	---	---
VaC:						
Vandalia------------	---	---	---	Moderate	High	Moderate
VnD:						
Vandalia------------	---	---	---	Moderate	High	Moderate
VnE:						
Vandalia------------	---	---	---	Moderate	High	Moderate
Yg:						
Yeager--------------	---	---	---	None	Low	High

Table 22.--Classification of the Soils

Soil name	Family or higher taxonomic class
Allegheny	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Beech	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Berks	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Cedarcreek	Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents
Chagrin	Fine-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Cloverlick	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Cotaco	Fine-loamy, mixed, semiactive, mesic Aquic Hapludults
Dormont	Fine-loamy, mixed, superactive, mesic Oxyaquic Hapludalfs
Fiveblock	Loamy-skeletal, mixed, semiactive, nonacid, mesic Typic Udorthents
Gilpin	Fine-loamy, mixed, active, mesic Typic Hapludults
Grigsby	Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Guyan	Fine-loamy, mixed, semiactive, mesic Aeric Endoaquults
Guyandotte	Loamy-skeletal, mixed, active, mesic Humic Dystrudepts
Hazleton	Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts
Highsplint	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Holly	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Kanawha	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Kaymine	Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents
Latham	Fine, mixed, semiactive, mesic Aquic Hapludults
Lily	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Lobdell	Fine-loamy, mixed, active, mesic Fluvaquentic Eutrudepts
Matewan	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Middlebury	Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Moshannon	Fine-silty, mixed, active, mesic Dystric Fluventic Eutrudepts
Nelse	Coarse-loamy, mixed, active, nonacid, mesic Mollic Udifluvents
Orrville	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Pineville	Fine-loamy, mixed, active, mesic Typic Hapludults
Rayne	Fine-loamy, mixed, active, mesic Typic Hapludults
Senecaville	Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts
Sensabaugh	Fine-loamy, mixed, semiactive, mesic Dystric Fluventic Eutrudepts
Sharpcrest	Coarse-loamy, siliceous, semiactive, mesic Typic Dystrudepts
Shelocta	Fine-loamy, mixed, active, mesic Typic Hapludults
Skidmore	Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts
Udorthents	Udorthents
Upshur	Fine, mixed, superactive, mesic Typic Hapludalfs
Vandalia	Fine, mixed, active, mesic Typic Hapludalfs
Wharton	Fine-loamy, mixed, active, mesic Aquic Hapludults
Yeager	Sandy, mixed, mesic Typic Udifluvents

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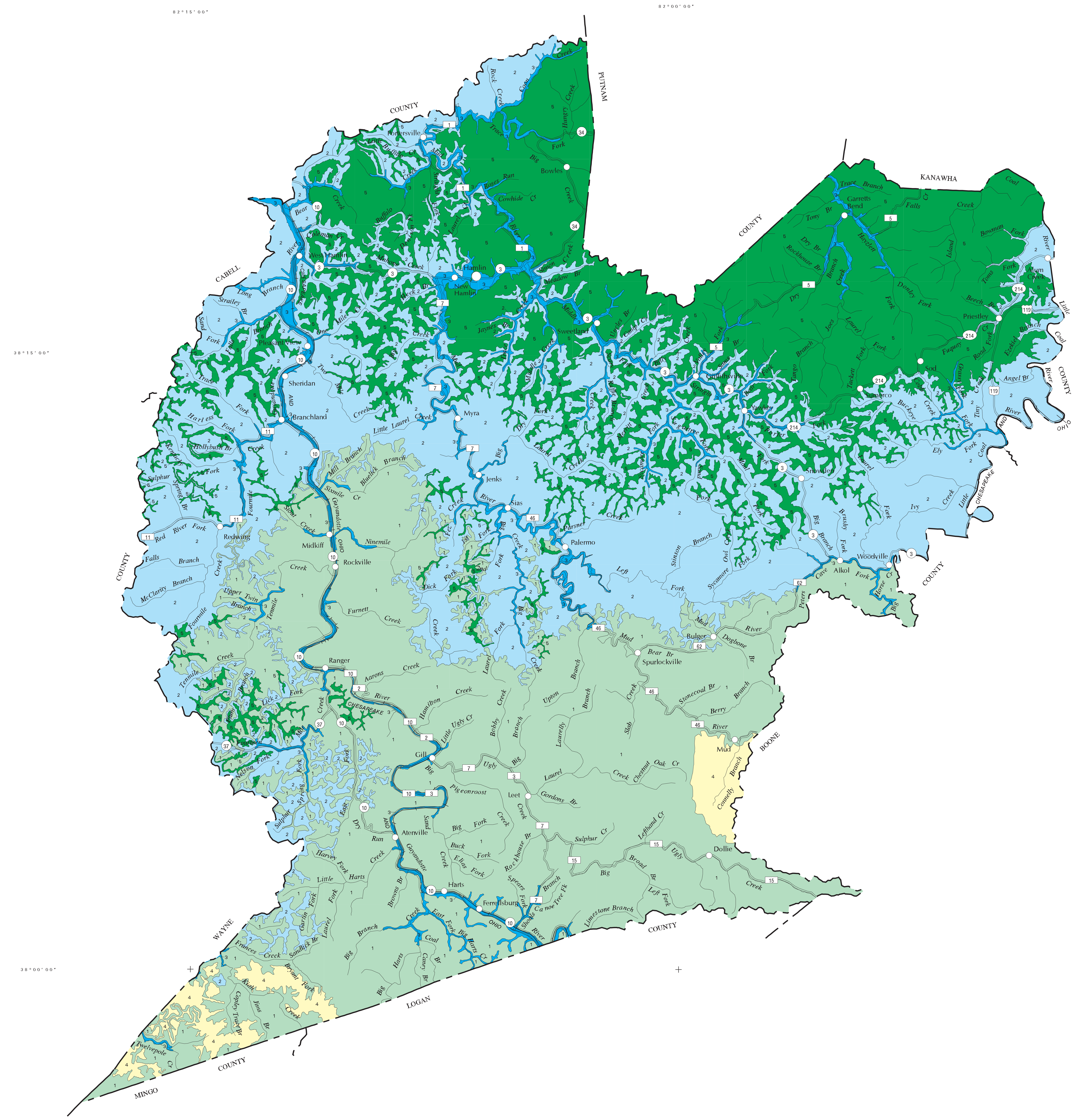


SOIL LEGEND*

1	Highsplint-Matewan-Cloverlick
2	Rayne-Gilpin-Matewan
3	Grigsby-Chagrin-Lobdell-Orrville
4	Kaymine-Fiveblock
5	Gilpin-Upshur

*The units on this legend are described in the text under the heading "General Soil Map Units."

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
IN COOPERATION WITH
WEST VIRGINIA AGRICULTURAL AND FORESTRY EXPERIMENT STATION
AND THE
WEST VIRGINIA CONSERVATION AGENCY

GENERAL SOIL MAP
LINCOLN COUNTY, WEST VIRGINIA

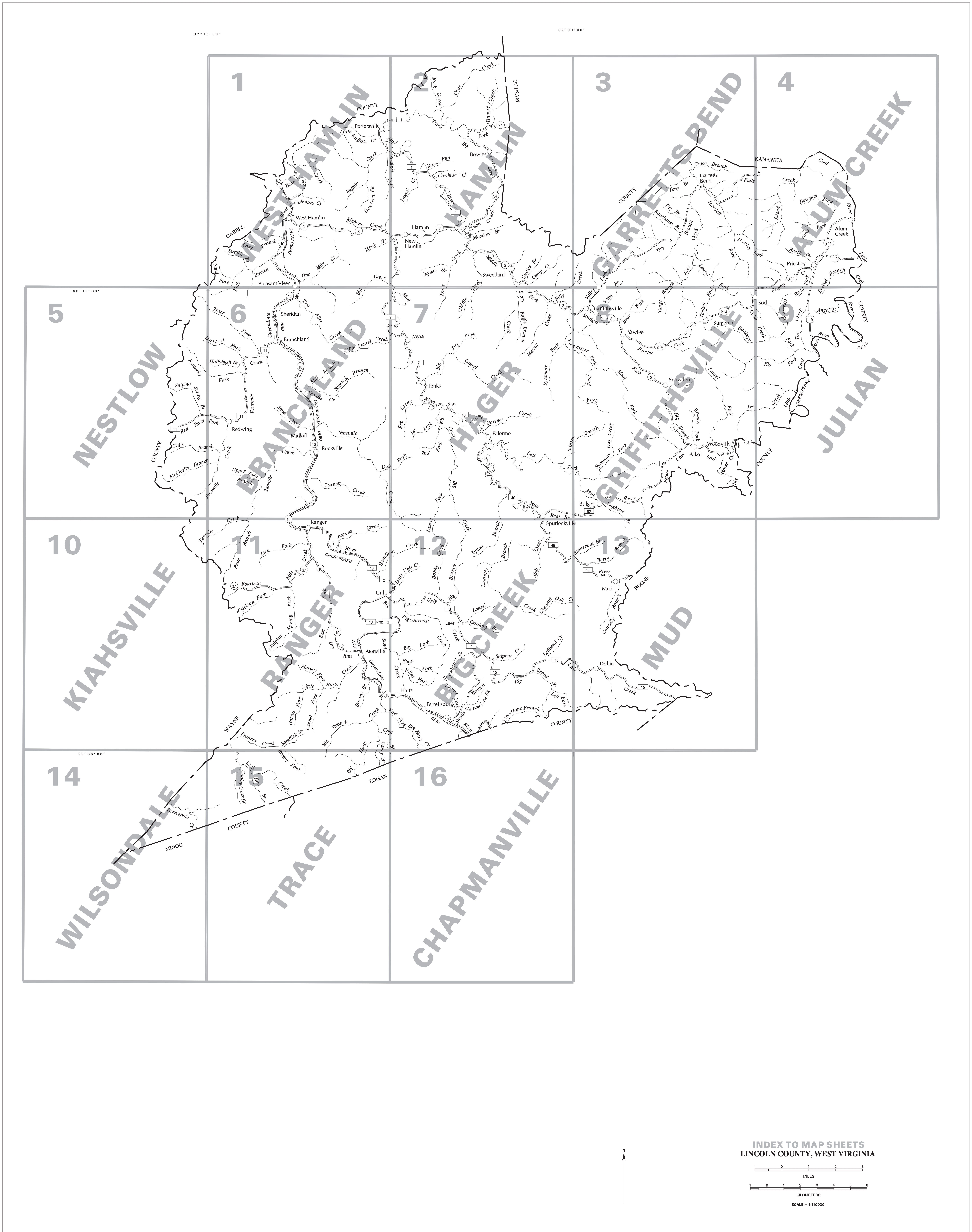
N

MILES: 1 0 1 2 3

KILOMETERS: 1 0 1 2 3 4 5 6

SCALE = 1:110000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



1 WEST HAMLIN
2 HAMLIN
3 GARRETTS BEND
4 ALUM CREEK
5 NESTLOW
6 BRANCHLAND
7 HAGER
8 GRIFFITHSVILLE
9 JULIAN
10 KIAHSVILLE
11 RANGER
12 BIG CREEK
13 MUD
14 WILSONDALE
15 TRACE
16 CHAPMANVILLE
PUTNAM COUNTY
KANAWHA COUNTY
CABELL COUNTY
WAYNE COUNTY
BOONE COUNTY
LOGAN COUNTY
MINGO COUNTY
West Hamlin
Hamlin
New Hamlin
Portersville
Bowles
Sweetland
Garretts Bend
Alum Creek
Priestley
Griffithsville
Yawkey
Sumerco
Sod
Snowden
Woodville
Alkol
Pleasant View
Sheridan
Branchland
Redwing
Midkiff
Rockville
Myra
Jenks
Sias
Palermo
Bulger
Spurlockville
Ranger
Gill
Leet
Atenville
Harts
Ferrellsburg
Mud
Dollie
INDEX TO MAP SHEETS
LINCOLN COUNTY, WEST VIRGINIA
MILES
KILOMETERS
SCALE = 1:110000

SOIL LEGEND

Map symbols consist of a combination of letters. The first letter, which is always a capital, is the initial letter of the soil name. The second letter, lowercased, separates map units having names that begin with the same letter. The third letter (A, B, C, D, E, or F) indicates the slope. Symbols without a slope letter are for nearly level soils, for soils named for categories above the series level that have variable slope ranges, or for miscellaneous areas.

SYMBOL	NAME
AgB	Allegheny loam, bedrock substratum, 3 to 8 percent slopes
AgC	Allegheny loam, bedrock substratum, 8 to 15 percent slopes
BeD	Beech loam, 15 to 25 percent slopes
BeE	Beech loam, 25 to 35 percent slopes
BSF	Berks-Shelocta association, very steep, extremely stony
CeF	Cedarcreek-Rock outcrop complex, very steep, extremely stony
Ch	Chagrin loam, frequently flooded
CoA	Cotaco loam, 0 to 3 percent slopes
CoB	Cotaco loam, 3 to 8 percent slopes
CuB	Cotaco-Urban land complex, 3 to 8 percent slopes
CuC	Cotaco-Urban land complex, 8 to 15 percent slopes
DlD	Dormont-Latham complex, 15 to 25 percent slopes
DlE	Dormont-Latham complex, 25 to 35 percent slopes
GiD	Gilpin silt loam, 15 to 25 percent slopes
GiE	Gilpin silt loam, 25 to 35 percent slopes
GlF	Gilpin silt loam, 35 to 65 percent slopes, very stony
GmE	Gilpin-Matewan complex, 25 to 35 percent slopes, very stony
GpC	Gilpin-Upshur complex, 8 to 15 percent slopes
GpD	Gilpin-Upshur complex, 15 to 25 percent slopes
GpE	Gilpin-Upshur complex, 25 to 35 percent slopes
GpF	Gilpin-Upshur complex, 35 to 65 percent slopes
GrE	Gilpin-Wharton complex, 15 to 35 percent slopes
Gs	Grigsby fine sandy loam, frequently flooded
Gt	Grigsby loam, occasionally flooded
Gu	Guyan silt loam, rarely flooded
HMF	Highsplint-Matewan-Cloverlick association, very steep, extremely stony
HuE	Highsplint-Urban land complex, 15 to 35 percent slopes, very stony
Hy	Holly loam, occasionally flooded
KaA	Kanawha silt loam, 0 to 3 percent slopes, protected
KaB	Kanawha silt loam, 3 to 8 percent slopes, protected
KfB	Kaymine and Fiveblock soils, 0 to 8 percent slopes, extremely stony
KfF	Kaymine and Fiveblock soils, 35 to 65 percent slopes, extremely stony
KmF	Kaymine-Cedarcreek-Matewan complex, very steep, extremely stony
LgC	Latham-Gilpin complex, 8 to 15 percent slopes
LgD	Latham-Gilpin complex, 15 to 25 percent slopes
LiD	Lily sandy loam, 15 to 25 percent slopes, very stony
LiE	Lily sandy loam, 25 to 35 percent slopes, very stony
Lo	Lobdell loam, occasionally flooded
MlE	Matewan-Latham complex, 25 to 35 percent slopes, very stony
MPF	Matewan-Pineville-Guyandotte association, very steep, extremely stony
Mr	Middlebury loam, frequently flooded
Ms	Moshannon silt loam, occasionally flooded
Ne	Nelse silt loam, 3 to 25 percent slopes, frequently flooded
Or	Orrville loam, occasionally flooded
PvE	Pineville channery loam, 25 to 35 percent slopes, extremely stony
RmF	Rayne-Matewan complex, 35 to 65 percent slopes, very stony
Sc	Senecaville silt loam, occasionally flooded
SeA	Sensabaugh loam, 0 to 3 percent slopes, occasionally flooded
SfB	Sensabaugh loam, 3 to 8 percent slopes, rarely flooded
ShF	Sharpcrest-Hazleton complex, 35 to 75 percent slopes, extremely bouldery
SkC	Shelocta-Beech complex, 8 to 15 percent slopes
SlD	Shelocta-Beech complex, 15 to 25 percent slopes, very stony
SlE	Shelocta-Beech complex, 25 to 35 percent slopes, very stony
Sm	Skidmore gravelly sandy loam, frequently flooded
Ud	Udorthents, smoothed
UkB	Urban land-Kanawha complex, 0 to 8 percent slopes, protected
UuB	Udorthents-Urban land complex, 0 to 8 percent slopes, rarely flooded
Uw	Udorthents, earthen dam
VaC	Vandalia silt loam, 8 to 15 percent slopes
VnD	Vandalia silt loam, 15 to 25 percent slopes, very stony
VnE	Vandalia silt loam, 25 to 35 percent slopes, very stony
W	Water
Yg	Yeager fine sandy loam, frequently flooded

FEATURE AND SYMBOL LEGEND FOR SOIL SURVEY

SOIL SURVEY FEATURES

SOIL DELINEATIONS AND SYMBOLS — AgB ErB

Mine or quarry

Very stony spot

Wet spot

Marl spot

CULTURAL FEATURES

BOUNDARIES

National, state, or province

County or parish

Reservation (national forest or park, state forest or park)

ROAD EMBLEMS

Federal — 287, 410, 224

State — 52, 52, 347

LOCATED OBJECTS

Cemetery

Church

School

HYDROGRAPHIC FEATURES

Unclassified stream

Drainage end
(indicates direction of flow)

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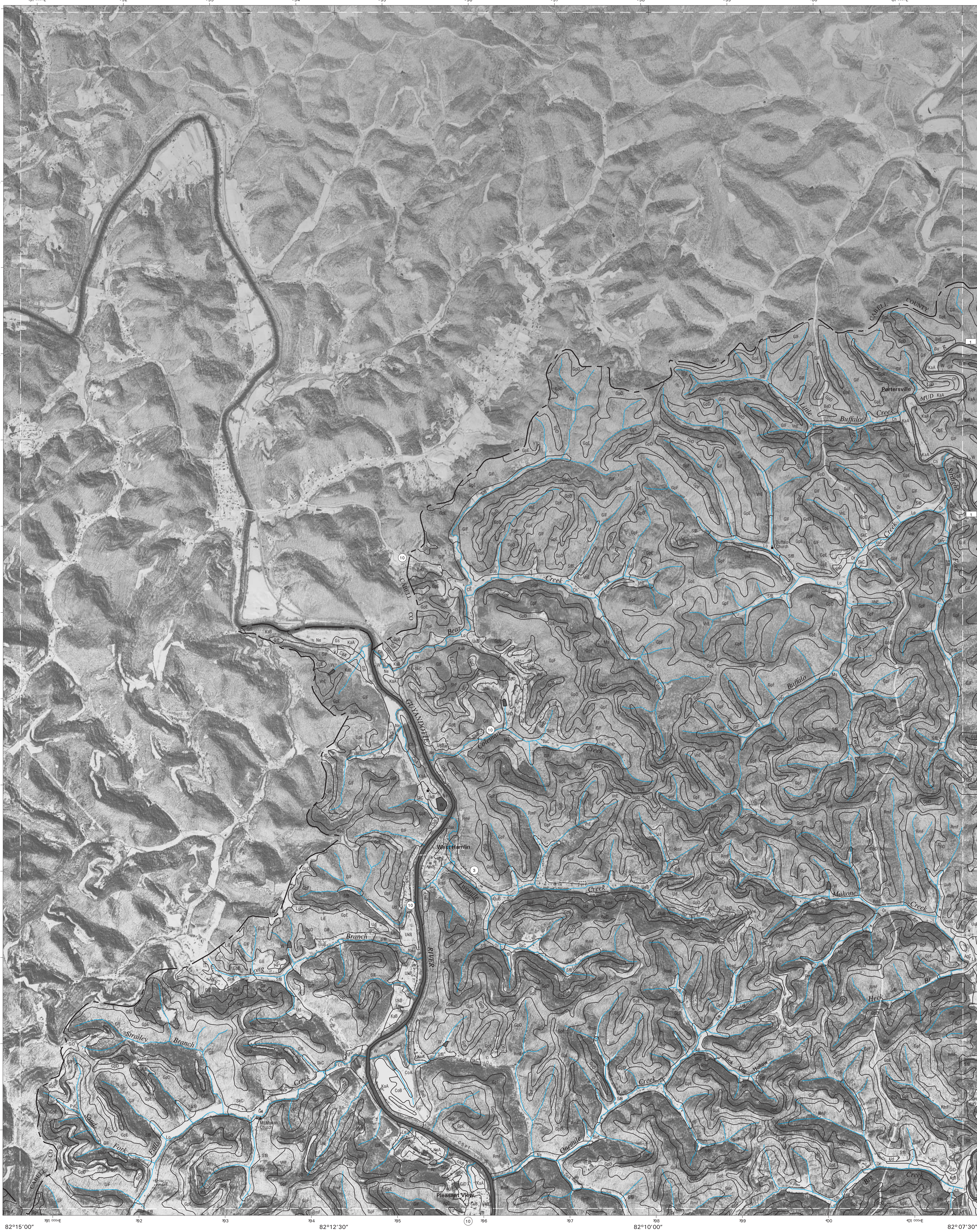


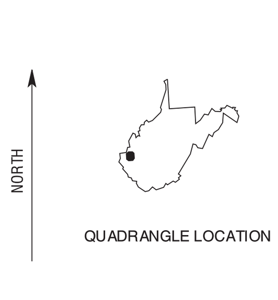
Joins sheet 6, Branchland

Joins sheet 5, Nestlow

Joins sheet 7, Hager

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1996 aerial photography. The hydrography and culture layers were acquired from compiled DOQs and from the U.S. Geological Survey Topographic quadrangles. The hydrography and culture layers were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



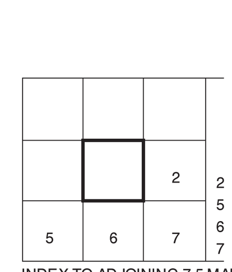
QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

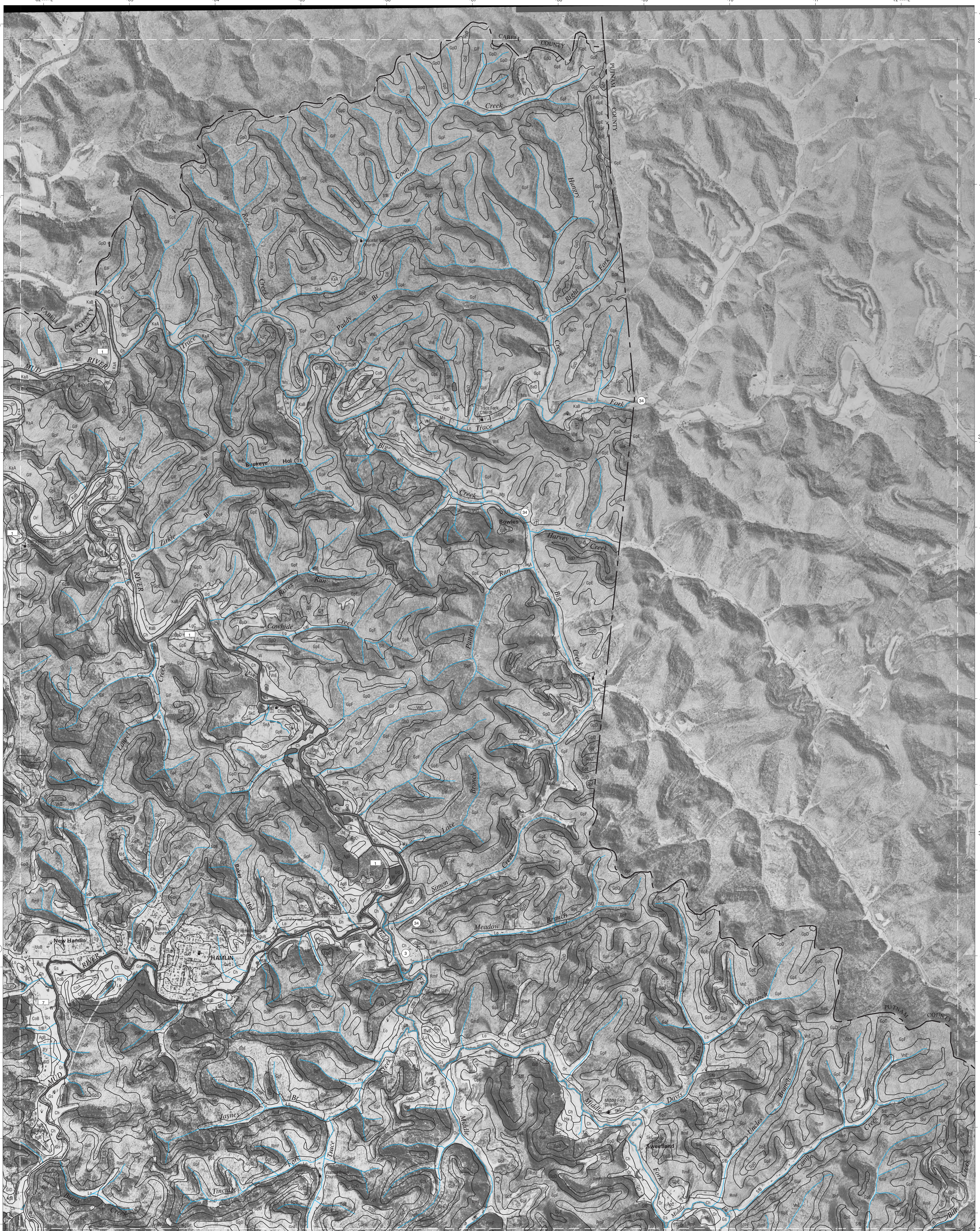


2 HAMLIN
5 NESTLOW
6 BRANCHLAND
7 HAGER

INDEX TO ADJOINING 7.5 MAPS

WEST HAMLIN, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 16

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



Joins sheet 6, Branchland

Joins sheet 7, Hager

Joins sheet 8, Griffithsville

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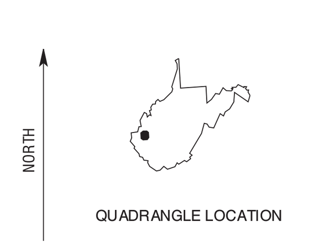

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

1		3
6	7	8

1 WEST HAMLIN
3 GARRETTS BEND
6 BRANCHLAND
7 HAGER
8 GRIFFITHSVILLE

INDEX TO ADJOINING 7.5 MAPS

HAMLIN, (OVERSIZED) WEST VIRGINIA

7.5 MINUTE SERIES

SHEET NUMBER 2 OF 16

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UNITED STATES
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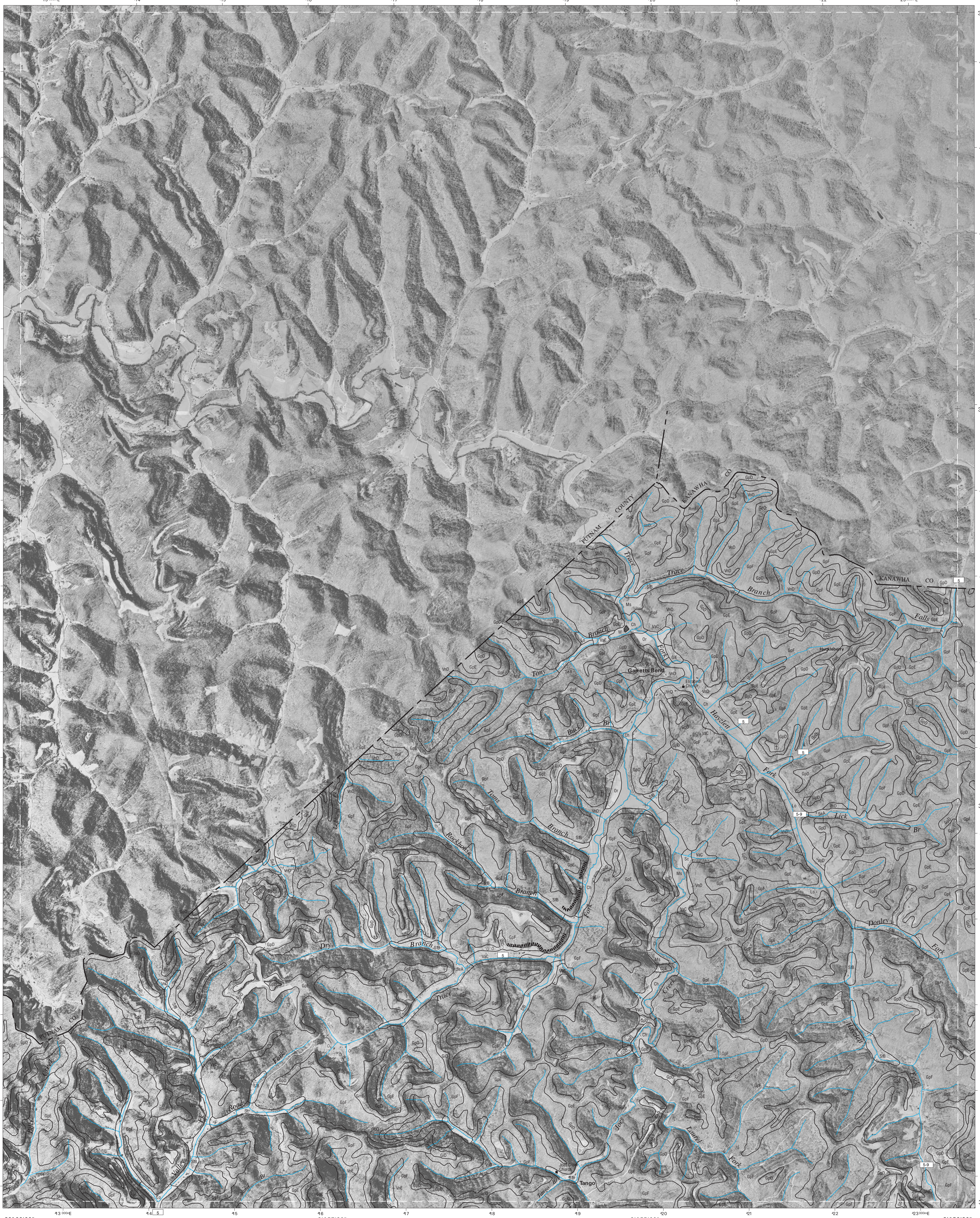
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
GARRETTS BEND QUADRANGLE
SHEET NUMBER 3 OF 16



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

2 HAMLIN
4 ALUM CREEK
7 HAGER
8 GRIFFITHSVILLE
9 JULIAN

INDEX TO ADJOINING 7.5 MAPS

GARRETTS BEND, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 16

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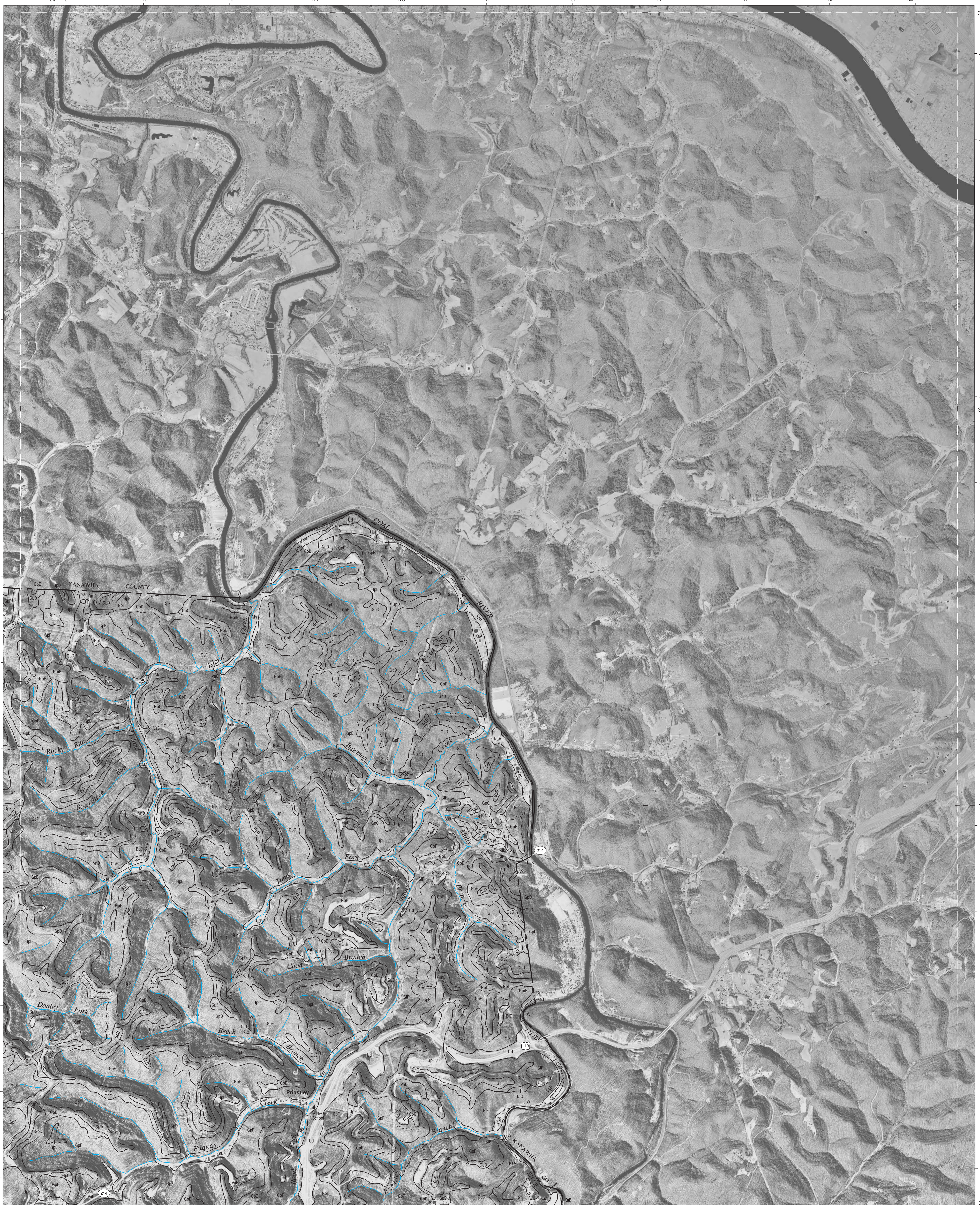
LINCOLN COUNTY, WEST VIRGINIA
ALUM CREEK QUADRANGLE
SHEET NUMBER 4 OF 16



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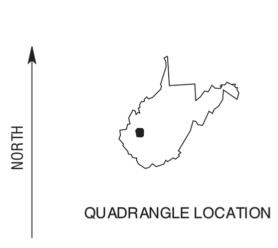
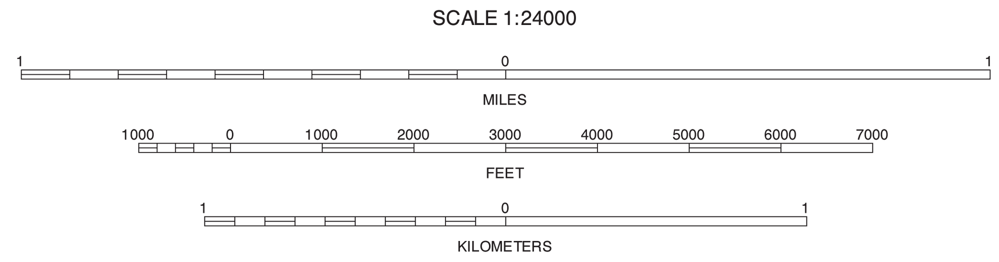
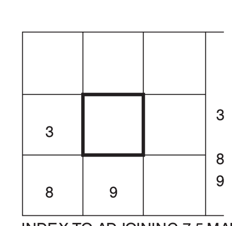


QUADRANGLE LOCATION

SCALE 1:24000





INDEX TO ADJOINING 7.5 MAPS

ALUM CREEK, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 16

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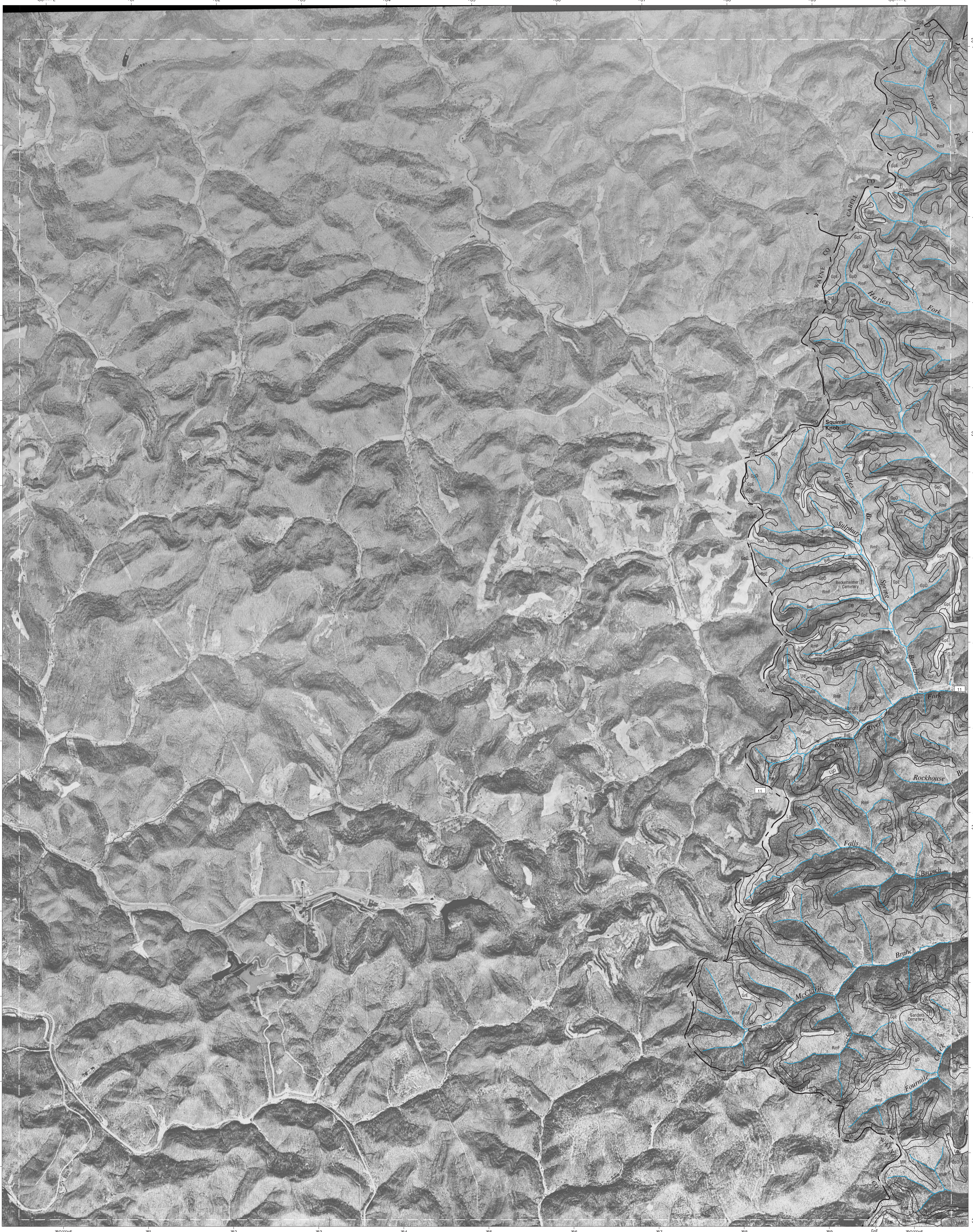
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
NESTLOW QUADRANGLE (OVERSIZED)
SHEET NUMBER 5 OF 16

Joins sheet 1, West Hamlin



Joins sheet 6, Branchland

Joins sheet 10, Kiahsville

Joins sheet 11, Ranger

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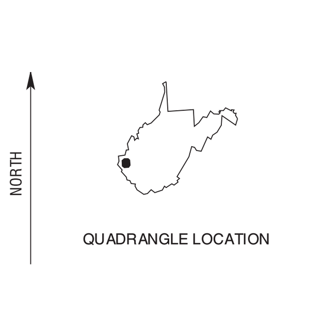

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

1 WEST HAMLIN
6 BRANCHLAND
10 KIAHSVILLE
11 RANGER

INDEX TO ADJOINING 7.5 MAPS

NESTLOW, (OVERSIZED) WEST VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 5 OF 16

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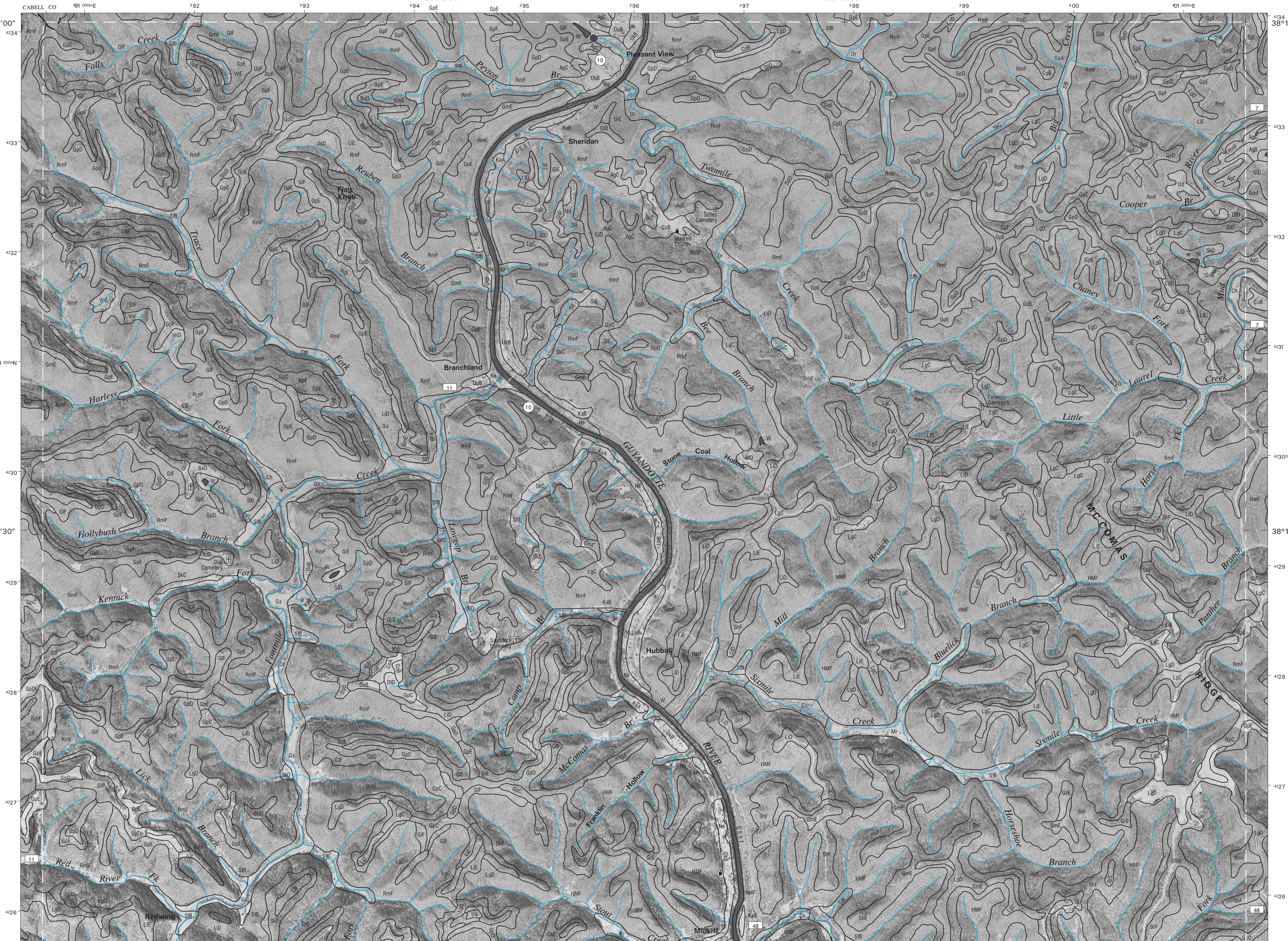
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
BRANCHLAND QUADRANGLE
SHEET NUMBER 6 OF 16



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QUADRANGLE LOCATION

SCALE 1:24000

MILES · FEET · KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

1 WEST HAMLIN
2 HAMLIN
5 NESTLOW
7 HAGER
10 KIAHSVILLE
11 RANGER
12 BIG CREEK

BRANCHLAND, WEST VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 6 OF 16

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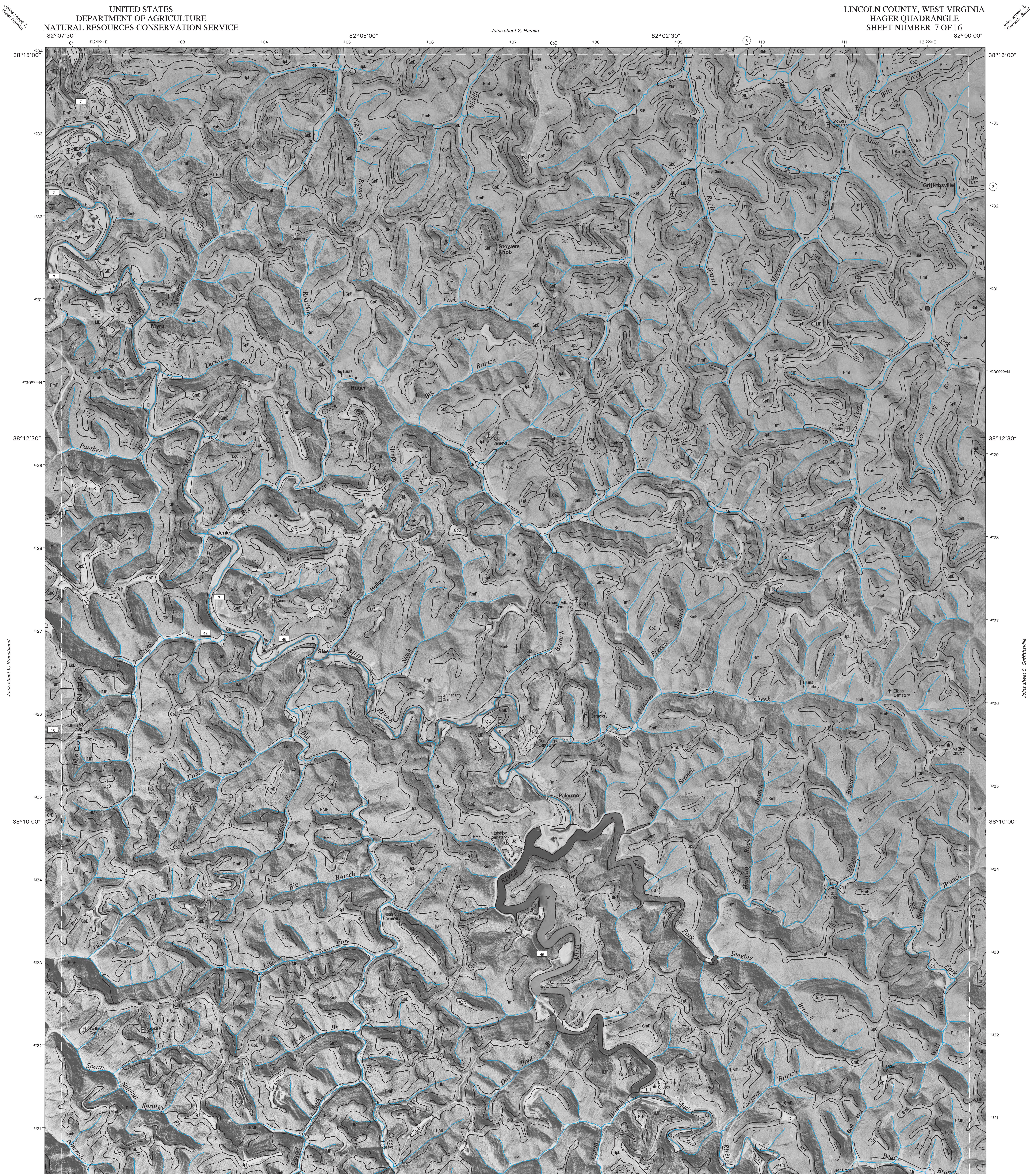
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
HAGER QUADRANGLE
SHEET NUMBER 7 OF 16



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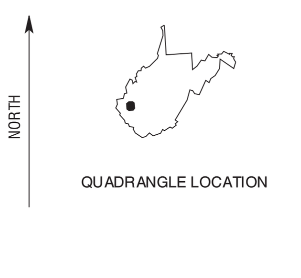

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

1	2	3
6		8
11	12	13

1 WEST HAMLIN
2 HAMLIN
3 GARRETTS BEND
6 BRANCHLAND
8 GRIFFITHSVILLE
11 RANGER
12 BIG CREEK
13 MUD

INDEX TO ADJOINING 7.5 MAPS

HAGER, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 16

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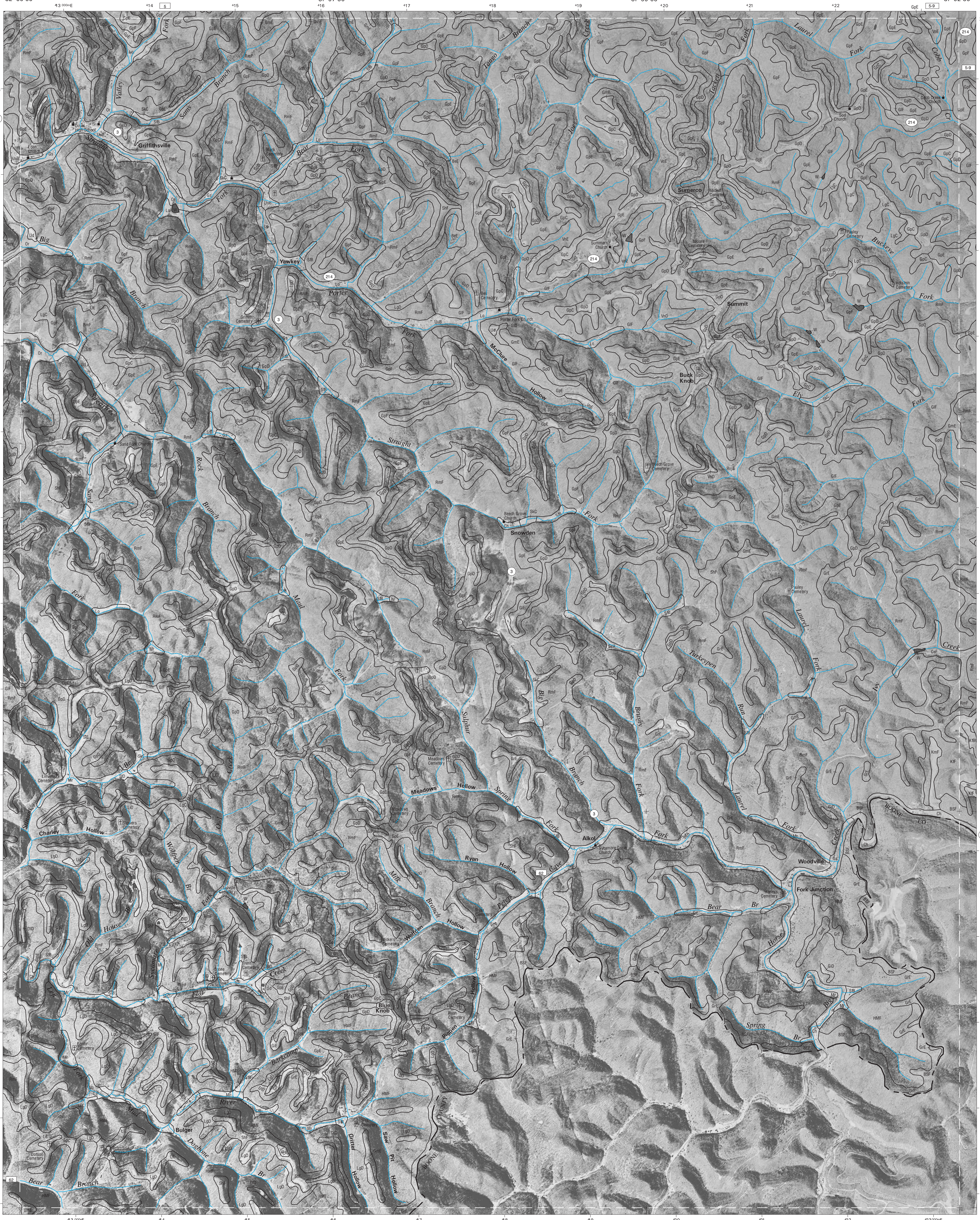
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
GRIFFITHSVILLE QUADRANGLE
SHEET NUMBER 8 OF 16

Joins sheet 2, Hamlin

Joins sheet 3, Garretts Bend

Joins sheet 4, Alum Creek



Joins sheet 7, Hager

Joins sheet 9, Julian

Joins sheet 12, Big Creek

Joins sheet 13, Mud

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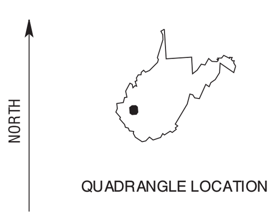

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 ½ 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 .5 0 1

2	3	4
7		9
12	13	

2 HAMLIN
3 GARRETTS BEND
4 ALUM CREEK
7 HAGER
9 JULIAN
12 BIG CREEK
13 MUD

INDEX TO ADJOINING 7.5 MAPS

GRIFFITHSVILLE, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 16

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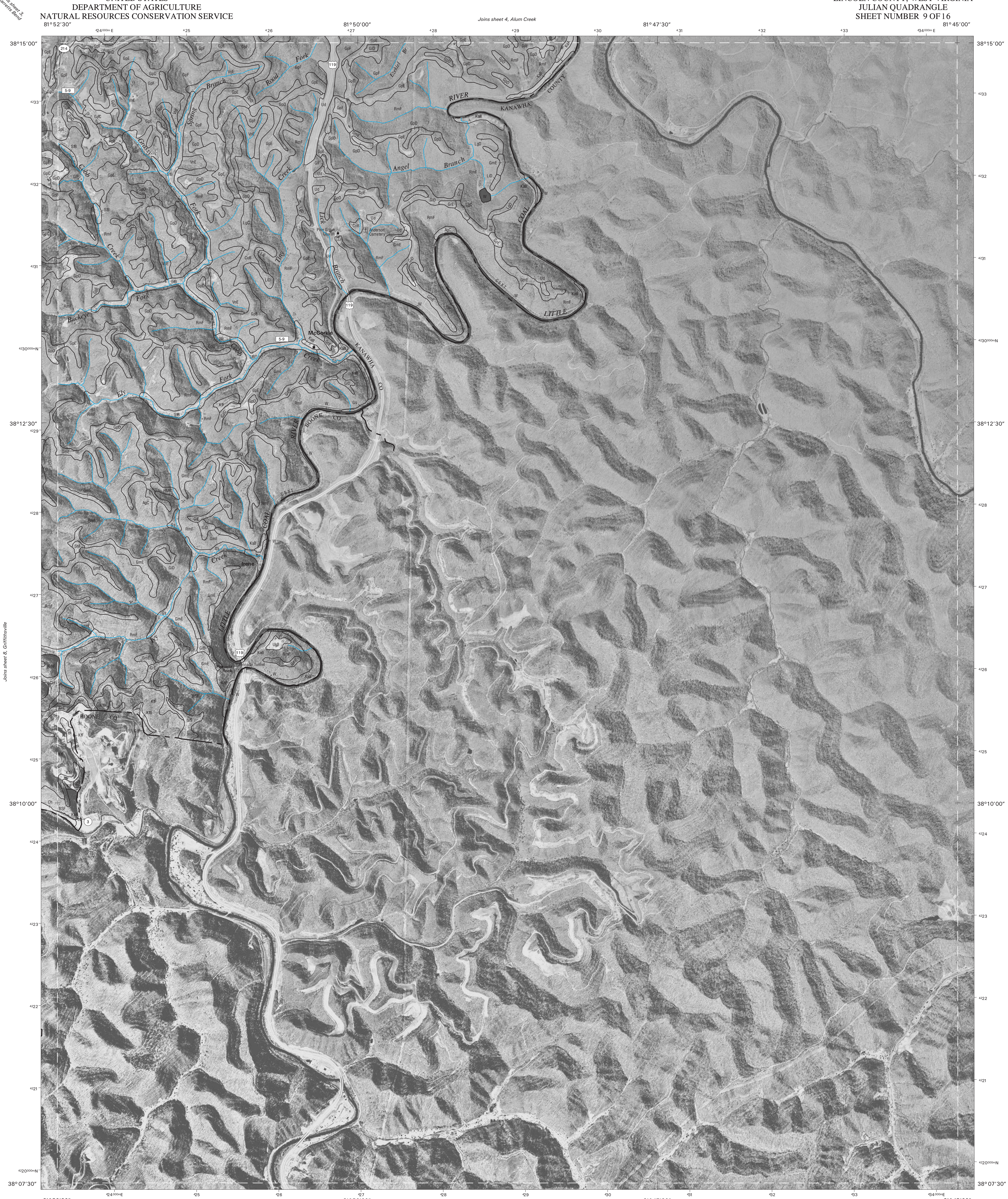

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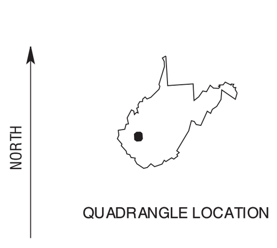

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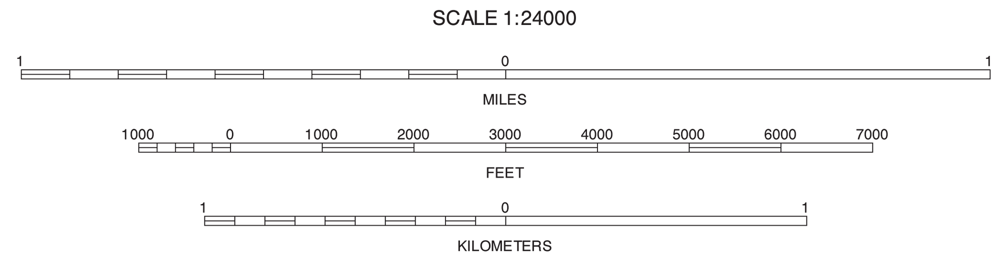

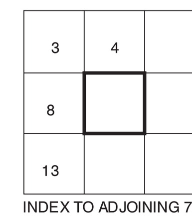

3 GARRETTS BEND
4 ALUM CREEK
8 GRIFFITHSVILLE
13 MUD

INDEX TO ADJOINING 7.5 MAPS

JULIAN, WEST VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 9 OF 16

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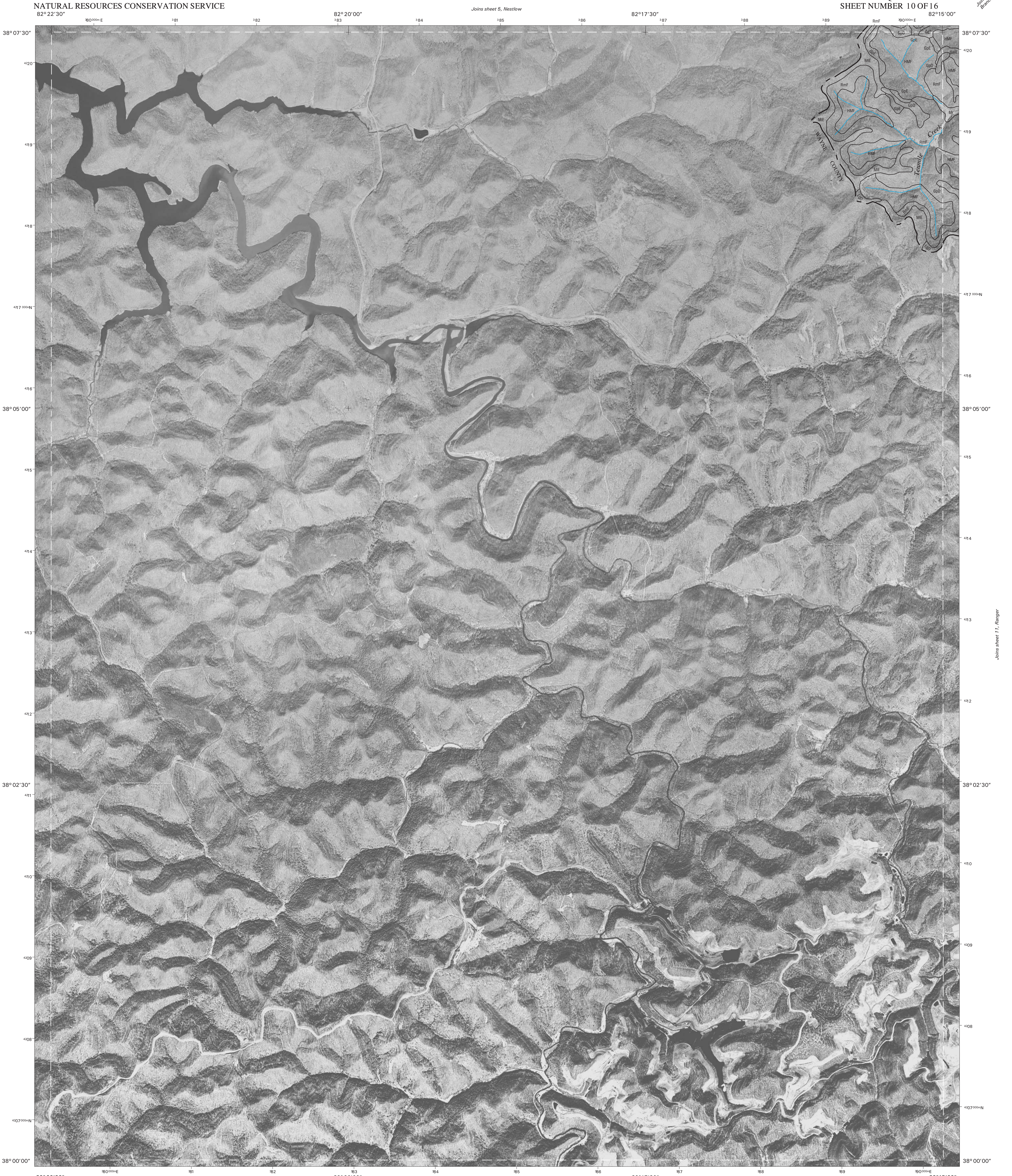
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
KIAHSVILLE QUADRANGLE
SHEET NUMBER 10 OF 16



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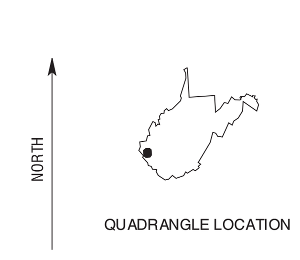


QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	5	6
		11
	14	15

5 NESTLOW
6 BRANCHLAND
11 RANGER
14 WILSONDALE
15 TRACE

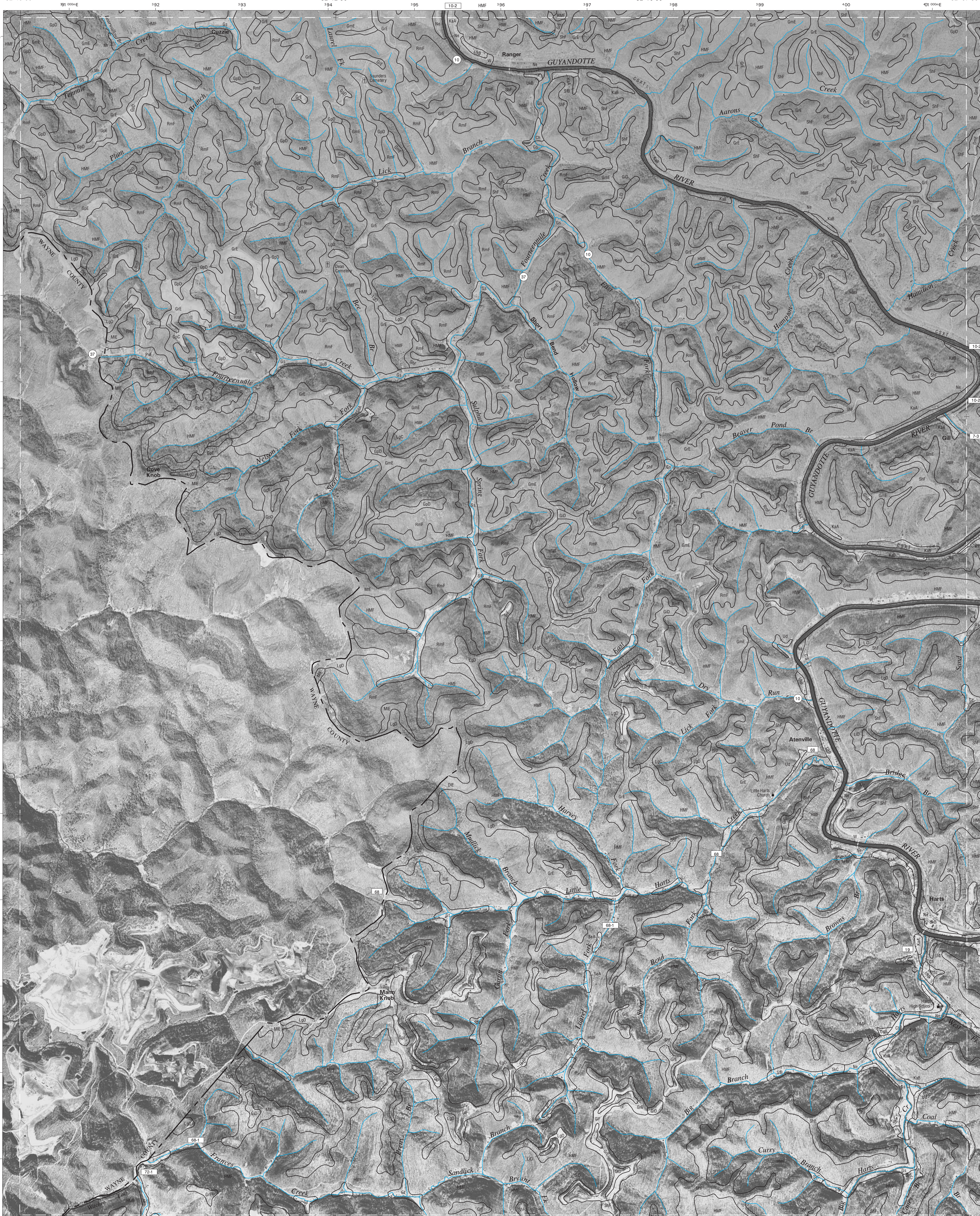
INDEX TO ADJOINING 7.5 MAPS

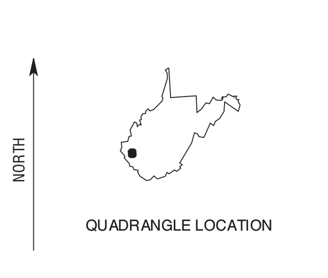
KIAHSVILLE, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 16

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
RANGER QUADRANGLE
SHEET NUMBER 11 OF 16





SCALE 1:24000

MILES: 1 — 0 — 1
FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000
KILOMETERS: 1 — 0 — 1

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

5	6	7
10		12
14	15	16

5 NESTLOW
6 BRANCHLAND
7 HAGER
10 KIAHSVILLE
12 BIG CREEK
14 WILSONDALE
15 TRACE
16 CHAPMANVILLE

INDEX TO ADJOINING 7.5 MAPS

RANGER, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 16

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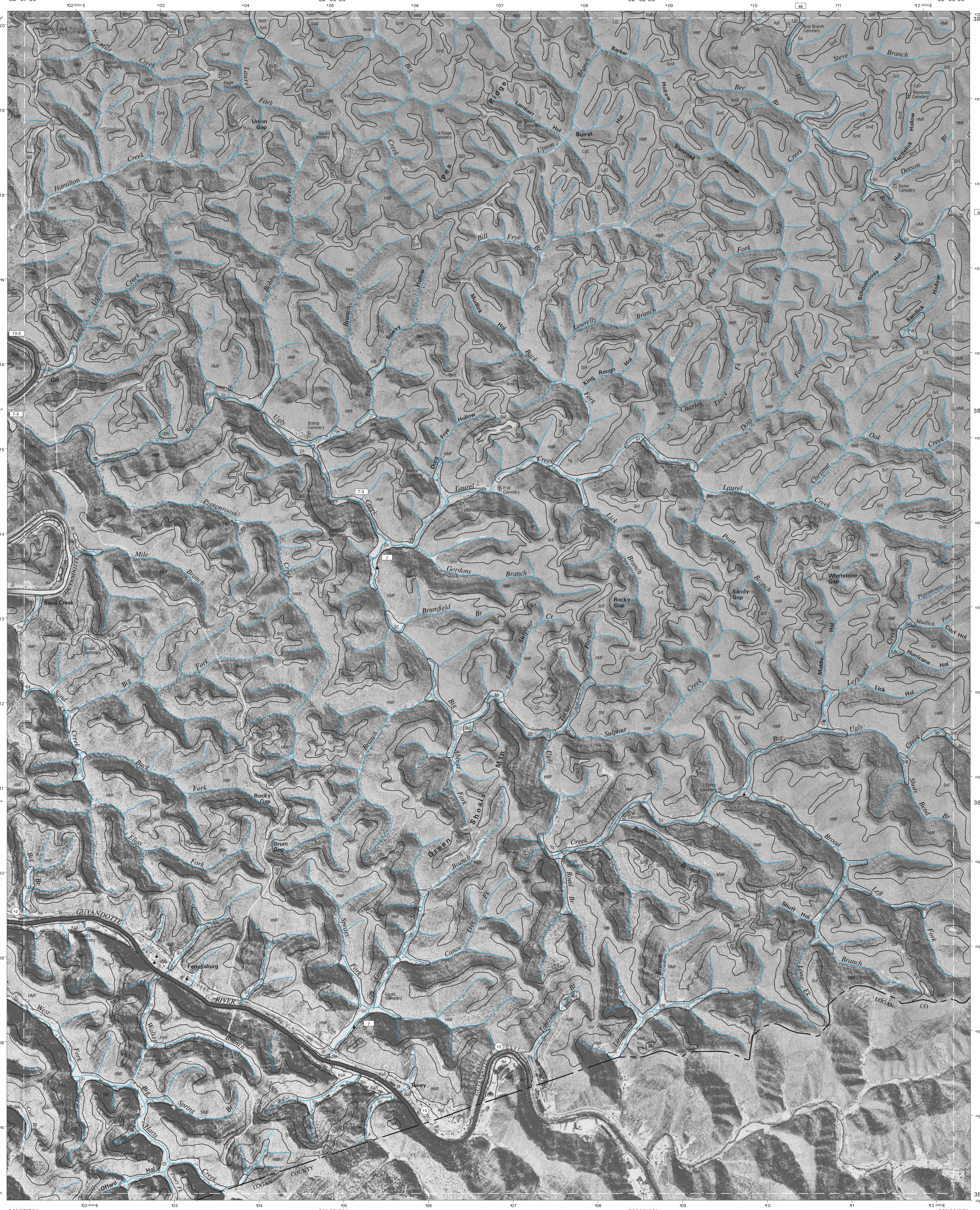
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
BIG CREEK QUADRANGLE
SHEET NUMBER 12 OF 16



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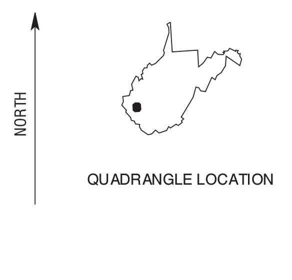

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

6	7	8
11		13
15	16	

6 BRANCHLAND
7 HAGER
8 GRIFFITHSVILLE
11 RANGER
13 MUD
15 TRACE
16 CHAPMANVILLE

INDEX TO ADJOINING 7.5 MAPS

BIG CREEK, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 16

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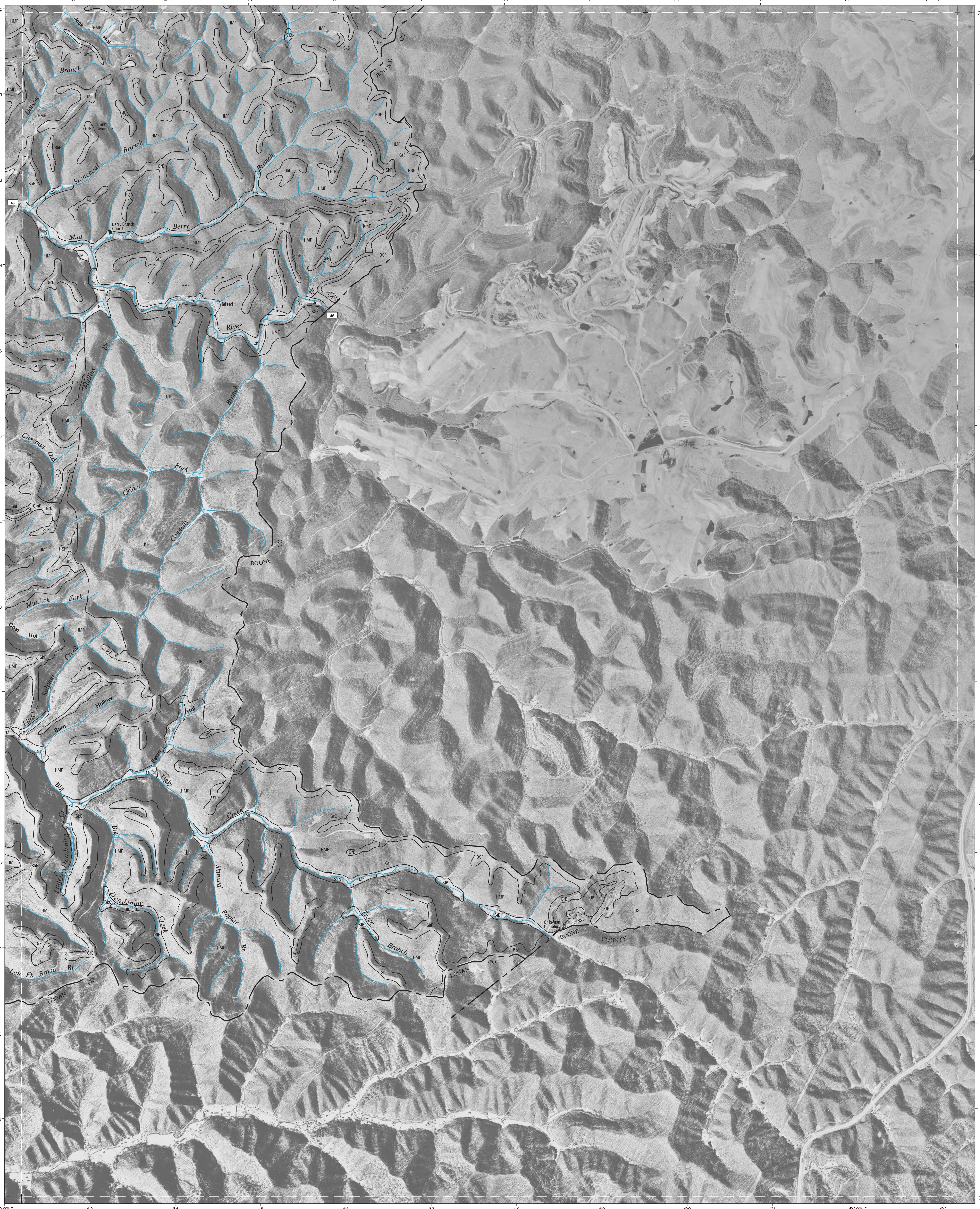
NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
MUD QUADRANGLE
SHEET NUMBER 13 OF 16



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

7	8	9
12		
16		

7 HAGER
8 GRIFFITHSVILLE
9 JULIAN
12 BIG CREEK
16 CHAPMANVILLE

INDEX TO ADJOINING 7.5 MAPS

MUD, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 16

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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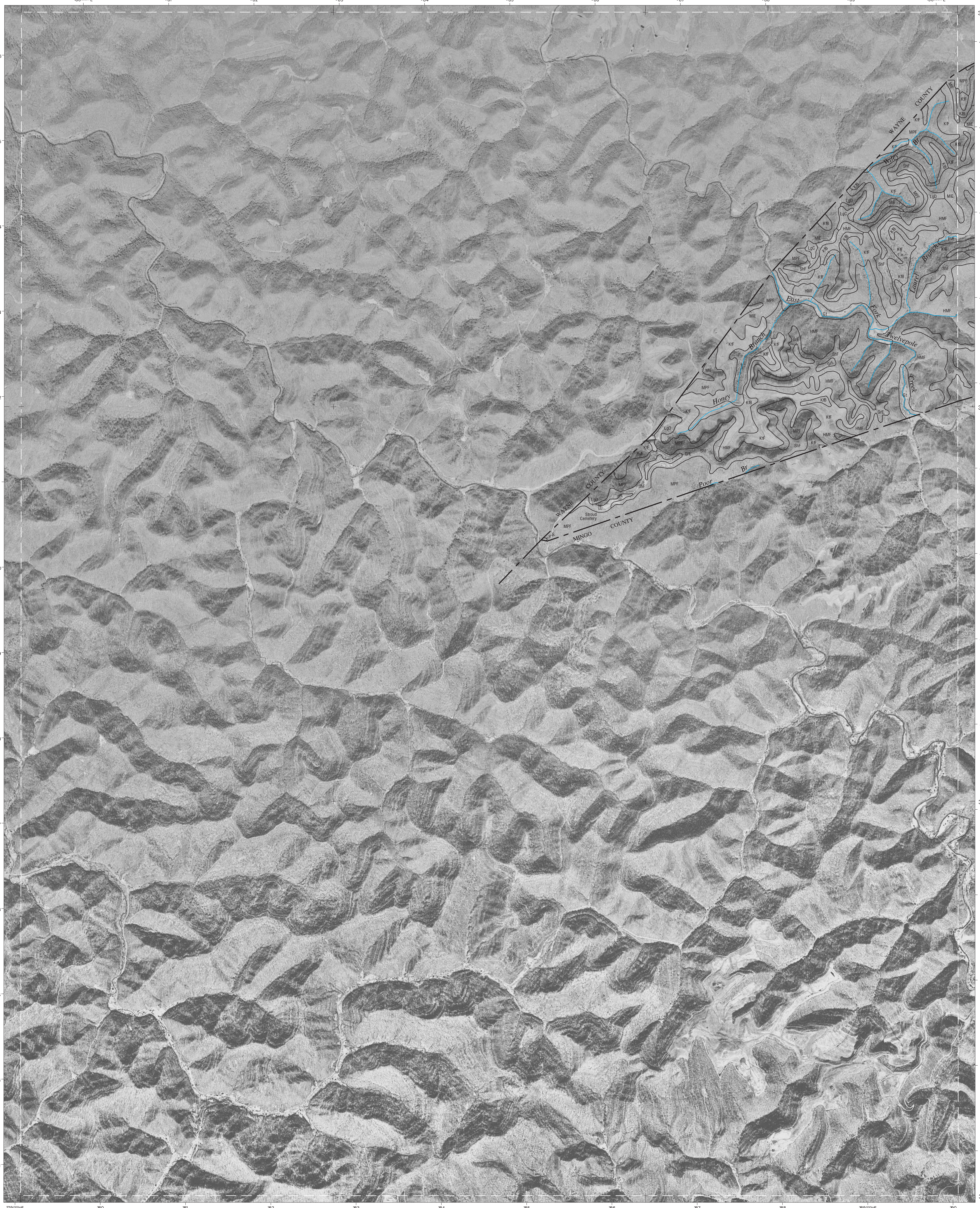
LINCOLN COUNTY, WEST VIRGINIA
WILSONDALE QUADRANGLE
SHEET NUMBER 14 OF 16



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

10 KIAHSVILLE
11 RANGER
15 TRACE

INDEX TO ADJOINING 7.5 MAPS

WILSONDALE, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 16

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NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
TRACE QUADRANGLE
SHEET NUMBER 15 OF 16

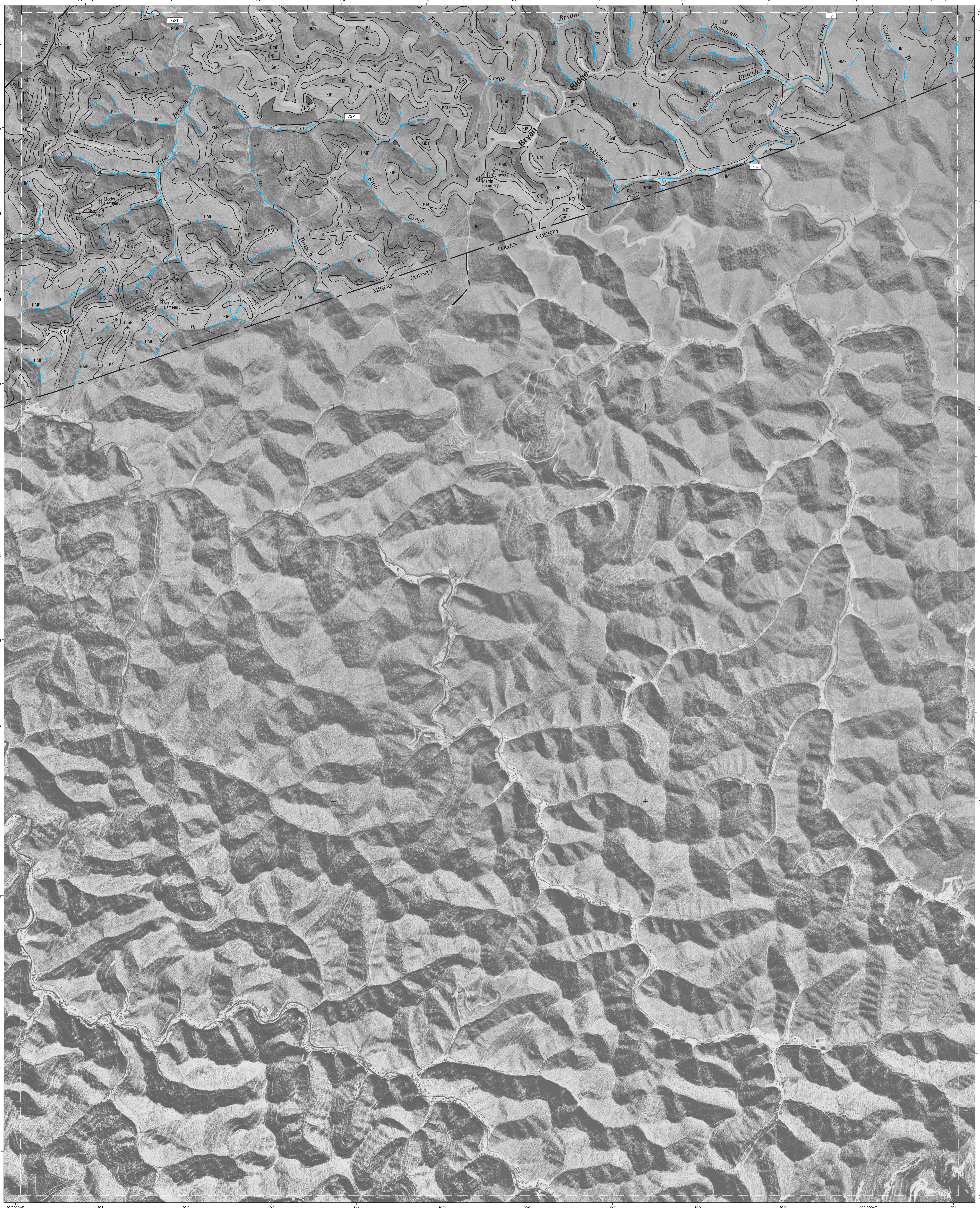
Joins sheet 10, Kiahsville

Joins sheet 11, Ranger

Joins sheet 12, Big Creek

Joins sheet 14, Wilsondale

Joins sheet 16, Chapmanville



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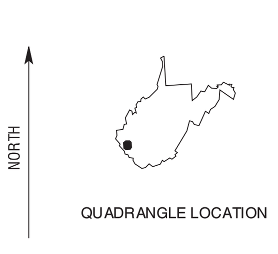

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

10	11	12
14		16

10 KIAHSVILLE
11 RANGER
12 BIG CREEK
14 WILSONDALE
16 CHAPMANVILLE

INDEX TO ADJOINING 7.5 MAPS

TRACE, WEST VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 15 OF 16

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

LINCOLN COUNTY, WEST VIRGINIA
CHAPMANVILLE QUADRANGLE
SHEET NUMBER 16 OF 16

Joins sheet 11, Ranger

Joins sheet 12, Big Creek

Joins sheet 13, Mud

Joins sheet 15, Trace

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

11	12	13
15		

11 RANGER
12 BIG CREEK
13 MUD
15 TRACE

INDEX TO ADJOINING 7.5 MAPS

CHAPMANVILLE, WEST VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 16

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